TRAINING NONCANONICAL SENTENCE PRODUCTION IN AGRAMMATIC APHASIA: THE EFFECTS OF LINGUISTIC-SPECIFIC COMPREHENSION AND PRODUCTION TREATMENT

By

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This dissertation is dedicated posthumously to my parents, Gordon and Evelyn Jorgenson.

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The focus of this dissertation was to evaluate the effects of linguistic-specific comprehension and production treatment on comprehension and production of noncanonical sentence constructions involving *wh*- and NP- movement in four agrammatic Broca's aphasic subjects. The treatment methods utilized were based on Chomsky's government binding theory. A single-subject multiple baseline design across subjects and behaviors was employed to measure acquisition and generalization effects within and across sentence types as well as cross-modal generalization and generalization to other verbal production tasks.

Ten active sentences of the form NP+V+NP were trained for auditory verbal comprehension or verbal production of passive sentences that require NP-movement and object cleft sentences that require *wh*-movement using either comprehension or production treatment protocols. Both protocols involved training recognition of verbs and thematic roles followed by training of the movement involved in order to derive the

target surface sentence structure. The primary difference between the treatment protocols was that comprehension training did not demand overt verbal response while production training did not demand overt comprehension response.

The results of the study indicated that both treatment methods were effective in facilitating acquisition of comprehension and production and generalization within trained sentence types in the four subjects who completed the study. Both treatments also facilitated cross-modal generalization to written production for the sentence types trained. As predicted, generalization of comprehension and production did not occur across trained sentence types due to the different manner in which movement occurs. Comprehension treatment resulted in cross-modal generalization to verbal production and production treatment had some influence on auditory verbal comprehension of the sentence types trained. No generalization was observed to corresponding untrained active sentences in three of the four subjects. Pre- and post-treatment measures indicated an increased percentage of complex sentence and verb use in verbal discourse tasks in three of the four subjects and increased auditory verbal comprehension of the sentence types trained in all subjects.

It was concluded that the results of this study lend further support for the use of linguistically-based treatment methods to remediate sentence production deficits in agrammatic Broca's aphasic individuals. Additional research is warranted for replication with other agrammatic Broca's aphasic subjects and subjects representative of other aphasia types that present agrammatic production and/or asyntactic comprehension deficits. The effects of this treatment should also be examined with other sentence constructions that involve linguistic movement in order to test the theory that underlies the treatment method. Finally, the effects of combined comprehension and production treatment should be investigated.

CHAPTER I

INTRODUCTION AND REVIEW OF THE LITERATURE

Introduction

There is a subset of individuals with aphasia, sustained as a result of neurological insult, who evince difficulty with sentence production and/or comprehension, i.e., those with *agrammatism*. Numerous treatment approaches to rehabilitation of agrammatism have been attempted with varying degrees of success. Until recently, the various approaches have not used linguistic theory to derive treatment methods. Studies designed to investigate these approaches have been largely case studies lacking experimental control, thus the validity of behavioral change reported can not be determined. Some recent treatment approaches have begun to make use of linguistic theory as the basis of treatment and to use experimental research designs; however, the results of some of these approaches are also inconclusive due to methodological problems--that is, the experimental control that is necessary to study treatment efficacy has been lacking.

One possible reason for unsuccessful treatment outcomes may be due to the fact that the nature of agrammatism is not fully understood. Many questions remain to be answered relative to the underlying cause(s) of agrammatism as well as to its treatment. Research of normal and disordered language production and comprehension has been undertaken in various disciplines, (e.g., linguistics, psychology, and speech/language pathology). These studies have contributed much to our understanding of both normal and disordered language, but their contribution to how to successfully treat agrammatism remains inconclusive.

The focus of this study was to evaluate the effects of a linguistically based treatment on verbal sentence production in aphasic patients presenting with deficit patterns consistent with agrammatism. First, the literature was reviewed in order to support the choice of treatment used in the study to remediate sentence production deficits in these aphasic individuals. The areas addressed that contribute to understanding the problem include (a) normal and disordered sentence production and comprehension, (b) the relation between comprehension and production, (c) theories of agrammatism, and (d) linguistic application. Treatment studies that document the success of approaches that have attempted to remediate the problem are also discussed.

Review of the Literature

Historical Perspective

Until the early 1970's agrammatism was largely thought of as a problem restricted to sentence production. The possibility that comprehension of syntax might also be impaired had hardly been considered. Many twentieth century authors in varying professional disciplines have offered additional descriptions of this clinical symptom pattern traditionally attributed to Broca's (or motor) aphasia. These descriptions include (a) the impoverishment of grammatical structure in the form of simplified or telegraphic sentences, (b) omitted function words, and (c) loss of verb tenses.

Most of the writings on grammatical disturbances in aphasia were in the German neurological literature in the early 1900's. Neurologist Arnold Pick was one of the early clinical aphasiologists to focus on this disorder and he is generally credited with being the first to explain agrammatism as a specific disorder. His explanation distinguished between agrammatism associated with motor aphasia and *pseudoagrammatism* associated with sensory aphasia. Pick considered disturbances in sentence production only and purported that the damaged organism in aphasia is

governed by a *law of economy* that forces the use of *emergency language*, i.e., telegraphic speech (in Goodglass, 1976).

Salomon in 1914 investigated the parallels between expressive and receptive agrammatism. This investigator was convinced that these two modalities were independent. Salomon's position was supported by Isserlin's case study published in 1922. Isserlin's patient presented agrammatic expression with normal comprehension of grammatical forms. The patient could not distinguish one preposition or inflectional form from another but could understand normal sentences (in Goodglass, 1968).

Kleist in 1934 introduced the terms *paragrammatism* and *sentence-muteness*. Paragrammatism described the confusions in the choice and ordering of words and grammatical forms that is characteristic of fluent aphasic patients while sentence-muteness was synonymous with what is usually considered to be agrammatism (in Goodglass, 1976).

Jakobson (1956) was the first linguist to contribute ideas on the nature of agrammatism. His interpretation of the disorder introduced the linguistic opposition between two components of language -- the paradigmatic (nominative use of nouns and verbs) and the syntagmatic (grammatical relationships signified by conjunctions, prepositions, pronouns, and articles). He referred to the breakdown of the paradigmatic aspect of language as a *similarity disorder* and the breakdown of the syntagmatic aspect as a *contiguity disorder*. Jakobson's theory is discussed in greater detail in a later section of this chapter.

What is categorized as agrammatic aphasia may encompass a heterogeneous patient group, i.e., there may be several types of agrammatism that depend on the specific lesions of the patients and the symptom patterns they present. As will be noted in the ensuing discussion of the characterization of agrammatism, varying definitions are used by various researchers. The characterization of this symptom complex is neither consistent nor clear.

Early Behavioral Characterizations of Agrammatism

Beginning in the 1950's and continuing over the next three decades, numerous clinical descriptions of agrammatism were offered (deVilliers, 1974; Friederici & Schoenle, 1980; Gleason, Goodglass, Green, Ackerman & Hyde, 1975; Gleason, Goodglass, Obler, Green, Hyde & Weintraub, 1980; Goodglass, 1968; Goodglass & Berko, 1960; Goodglass, Gleason, Bernholtz & Hyde, 1972; Goodglass & Hunt, 1958; Myerson & Goodglass, 1972; Saffran, Schwartz & Marin, 1980; Wales & Kinsella, 1981). These descriptions were similar across authors and primarily derived from descriptive studies of various aphasia types. The studies analyzed aphasic subjects' use of grammatical structures or syntactic sentence types. Methods of data collection utilized included sentence and story completion tasks, picture description tasks, repetition and spontaneous language tasks, and oral reading tasks (see Table 1). The resulting characterizations as seen in these studies variously described agrammatism as (a) a morphological problem, (b) a production problem, or (c) a lexical retrieval problem.

A Morphological Problem

A morphological problem was characterized as difficulty comprehending and producing lexical items referred to as *function words* or *closed class vocabulary* (e.g., connectives, auxiliaries, preposition, articles, pronouns) and *bound morphemes* (e.g., noun and verb inflections). Substantive lexical items referred to as *content words* or *open class vocabulary* (e.g., nouns, verbs, adjectives, adverbs) were relatively spared (deVilliers, 1974; Friederici & Schoenle, 1980; Goodglass & Berko, 1960; Goodglass & Hunt, 1958; Wales & Kinsella, 1981).

Goodglass and Hunt (1958) utilized an expressive test to analyze the use of plural and possessive forms of nouns in 24 aphasic subjects with different types of aphasia. In this test, a simple declarative sentence was read to the subjects twice. Following the reading, questions were asked which required one-word answers of

Table 1
Early Descriptive Studies of Aphasic Subjects' Use of Lexical Items and Grammatical and Syntactic Structures

Study	Structures Analyzed	Data Collection	# Ss	Aphasia Type	Results
Goodglass & Hunt (1958)	possessive /s/ plural /s/	story completion	24	all types	possessives more difficult than plural
Goodglass & Berko (1960)	10 morphemes 1. plural /z/, /s/ 2. plural /ez/ 3. past /t/, /d/ 4. past /ed/ 5. present /s/, /z/ 6. present /ez/ 7. possessive /s/, /z/ 8. possessive /ez/ 9. comparative /er/ 10. superlative /est/	sentence completion	21	not classified	hierarchy of difficulty (most to least) 1. possessives /ez/ 2. present /ez/ 3. possessive /s/, /z/ 4. past /t/, /d/ 5. past /ed/ 6. present /s/, /z/ 7. superlative /er/ 8. comparative /est/ 9. plural /s/, /z/ 10. plural /ez/
Goodglass (1968)	8 structures 1. imperatives 2. present progressive 3. simple past 4. yes/no questions 5. wh-questions 6. simple negative 7. conditional 8. noun + adjective clause	sentence repetition	not reported	Broca's & Wernicke's	hierarchy of difficulty (most to least) 1. conditional 2. noun + adjective clause (no difference found in performance on the other 6 structures) found same sequence

Table 1 (continued)

Study	Structures Analyzed	Data Collection	# Ss	Aphasia Type	Results		
Goodglass (1968) (continued)					of difficulty in both receptive and expressive modalities		
Goodglass et al. (1972)	14 structures	story completion	1	Broca's	norm. %	gram. %	feature %
	1. imperative intransitive				100	100	100
	2. imperative transitive				73	82	100
	3. indirect intransitive				0	12	71
	4. indirect transitive				0	0	65
	5. direct + indirect object				0	0	47
	6. yes/no questions				--	14	86
	7. wh-questions				33	40	87
	8. future				0	0	47
	9. embedded sentences				0	61	22
	10. passive				21	47	47
	11. comparative				7	33	73
	12. cardinal number				0	6	56
	13. adjective + noun				27	73	73
	14. adjective + adjective + noun				13	19	44
Myerson & Goodglass (1972)	nouns & verbs	spontaneous speech	3	Broca's	subjects used more nouns than verbs; verbs appeared in unmarked or present		

Table 1 (continued)

Study	Structures Analyzed	Data Collection	# Ss	Aphasia Type	Results
Myerson & Goodglass (1972) (continued)					participile form; nouns were concrete and mostly names of people and places
deVilliers (1974)	14 morphemes	spontaneous	8	nonfluent	hierarchy of difficulty
	1. regular plural	language	5	normal	(most to least)
	2. "a", "the"				1. 3rd person regular
	3. copula, contractible				2. past irregular
	4. copula, uncontractible				3. past regular /d/
	5. present progressive /ing/				4. "a", "the"
	6. 3rd person regular				5. copula, uncontractible
	7. regular past				6. copula, contractible
	8. irregular past				7. regular plural
	9. "on"				8. present progressive (irregular)
	10. "in"				
	11. possessive /s/				
	12. 3rd person irregular				
	13. auxiliary "be", contractible				
	14. auxiliary "be", uncontractible				
Gleason et al. (1975)	14 structures	story	8	Broca'	mean scores of
		completion	1	Conduction	co-occur. conv.
	1. imperative intransitive				3.2 2.8
	2. imperative transitive				3.5 5.4

Table 1 (continued)

Study	Structures Analyzed	Data Collection	# Ss	Aphasia Type	Results
Gleason et al. (1975)	3. number + noun				4.9 3.8
(continued)	4. adjective + noun				5.9 4.2
	5. wh-question				6.4 8.3
	6. declarative transitive				6.0 10.2
	7. declarative intransitive				7.1 8.2
	8. comparative				7.1 8.2
	9. passive				8.1 6.3
	10. yes/no question				9.1 7.8
	11. direct + indirect object				9.1 9.3
	12. embedded sentence				10.6 9.7
	13. adjective + adjective + noun				11.6 10.1
	14. future				12.1 10.8
Gleason et al. (1980)	stories analyzed for:	discourse	5	Broca's	Broca's reflected:
	1. thematic sequence	with pictures	5	Wernicke's	1. impoverished
	2. syntactic organization		5	normals	output (few words)
	3. length (# of words)				2. impoverished
	4. target lexemes				meaningful themes
	5. number of themes				3. more nouns than
	6. ration of nouns/verbs				verbs
	7. anaphora (pronouns with				4. few pronouns;
	antecedent nouns)				without antecedents
					5. more content than
					function words
					6. limited syntactic
					structures

Table 1 (continued)

Study	Structures Analyzed	Data Collection	# Ss	Aphasia Type	Results
Friederici & Schoenle (1980)	open & closed class vocabulary	reading	1	Broca's	subjects omitted closed class words
Saffran et al. (1980)	production of: 1. action relations 2. locative relations	written sentence ordering verbal picture description	5	Broca's	difficulty describing relations signified by order of noun phrases around verbs or prepositions, i.e., a word order problem
Wales & Kinsella (1981)	nouns and verbs prepositions particles	sentence completion	6	Broca's	prepositions and particles more difficult than nouns and verbs

either a pluralized or possessive form noun. These authors found that use of the possessive form was more difficult for these subjects than the plural form. This finding was consistent with the results of Goodglass and Berko's (1960) study that examined 21 unclassified aphasic subjects' ability to supply, by means of a sentence completion test, correct inflectional endings for nouns, verbs, and adjectives. Goodglass et al. concluded that the difficulty of inflectional endings followed an order based on grammatical function rather than phonetic similarity.

deVilliers (1974) analyzed 14 morphemes in the spontaneous language samples of eight nonfluent aphasic subjects and five normal controls. This author's analysis reflected a specific order of difficulty of grammatical morphemes that was unaffected by transformational or semantic complexity. These findings indicated that regular third person singular and regular and irregular past tense morphemes were consistently more difficult than present progressive, regular plural, and contractible copula morphemes.

Friederici and Schoenle (1980) examined the distinction between open and closed class vocabulary in two aphasic patients. One subject's profile was characteristic of Wernicke's aphasia and the other was classified as nonfluent aphasia. Homophonic words representing both open and closed class vocabulary were used to test oral reading of isolated words and sentences. One set of words was non-homographic (e.g., *be/bee*) and a second set was homographic (e.g., *I can/the can*). Results of the oral reading test indicated reverse patterns of impairment in the two subjects. For example, the fluent patient showed a lack of processing of lexical items (e.g., *bee*) with good preservation of the same sounding grammatical items (e.g., *be*). In contrast, the nonfluent patient showed a disruption of grammatical items as reflected by an inability to read orally at sentence level with superior oral reading of open class items in the isolated word condition. The authors suggested that these results indicated that there is a distinct recognition device for the two vocabulary classes.

Wales and Kinsella (1981) utilized a sentence completion task to examine the use of nouns, verbs, prepositions, and particles in six Broca's aphasic subjects. These subjects were presented with 150 sentences in which the final word was deleted and they were instructed to complete each sentence with a single word. The results of this study also indicated an open/closed class vocabulary distinction in that the subjects used a larger number of nouns and verbs correctly than prepositions and particles.

A Production Problem

A production problem was characterized as effortful production (hesitant, slower than normal rate), short and/or incomplete fragmented sentences with reduced syntactic complexity, and difficulty indicating grammatical relations in the presence of relatively spared comprehension (Gleason et al., 1975; Gleason et al., 1980; Goodglass, 1968; Goodglass et al., 1972, Saffron et al., 1980). Goodglass (1968) analyzed eight sentence structures using a repetition task with an unreported number of Broca's and fluent aphasic subjects. Forty 4- to 5-word sentences were presented orally for repetition. This author found wh-questions and imperatives to be easiest and yes-no questions and sentences with subordinate clauses to be hardest for both aphasic groups.

In a follow-up study (Goodglass et al., 1972), a single Broca's aphasic subject was presented with a story completion task to elicit 14 different sentence constructions. The results of this investigation again indicated that imperative and wh-questions forms were most intact while the passive and embedded sentence forms presented were more difficult for the subject.

Gleason et al. (1975) employed the same task with similar sentence types with eight Broca's and one conduction aphasic subject. The pattern of errors for these subjects was consistent with the order of difficulty of the constructions in Goodglass and colleagues' studies. Gleason et al. interpreted their findings as confirming the particular vulnerability of initial unstressed functors. That is, the authors found that

agrammatic Broca's aphasic subjects tended to initiate their utterances with stressed words or nouns.

In a later study Gleason et al. (1980) designed a picture story test to facilitate production of connected discourse. Subsequent analysis of the discourse of five Broca's aphasic, five Wernicke's aphasic, and five normal subjects was aimed at describing production of lexical and syntactic features as well as related story themes. The authors did not analyze the syntactic organization of the Broca's subjects because these subjects reportedly did not produce enough full sentences to analyze and compare with the other two groups. However, Gleason et al. did report that the Broca's subjects used a greater proportion of actual dialogue (e.g., *He said, 'Turn on the stove'* rather than *He told him to turn on the stove*) than the other two subject groups. This more frequent use of direct speech was interpreted as a strategy employed by the Broca's aphasic subjects to compensate for their inability to use complex embedded constructions.

Saffran et al. (1980) utilized pictures depicting action or locative relations between animate and inanimate objects to test written sentence ordering and verbal description in five Broca's aphasic subjects. These authors found that the subjects had difficulty describing the relations signifying the order of nouns phrases (NPs) around verbs or prepositions, especially when animacy was alike. Saffran et al. hypothesized that this difficulty was due to a lack of ability to assign thematic categories in order to decode the meaning relations among words (e.g., who or what is accomplishing or receiving the action specified by the verb).

A Lexical Retrieval Problem

A lexical retrieval problem was characterized as infrequent production of verbs compared to nouns, frequent production of *nounified* verbs that serve to name actions in the same way as nouns name things, and more frequent production of nouns that refer to concrete (predominately names of people and places) rather than abstract

entities (Gleason et al., 1980; Myerson & Goodglass, 1972). Myerson and Goodglass (1972) analyzed production of nouns and verbs utilizing spontaneous speech samples of three Broca's aphasic subjects. The authors found that nouns were used more frequently than verbs and that mostly concrete nouns were used. Most verbs were used in unmarked or present participle forms. Gleason et al. (1980) also found that their five Broca's subjects used a greater proportion of nouns than verbs when telling stories about pictures.

All of these early studies focused on production and suggested that agrammatic aphasic individuals evidence difficulty producing numerous grammatical and syntactic structures (e.g., possessive and irregular past tense morphemes, closed class vocabulary, passive voice sentences). The literature indicates some agreement regarding which structures are more difficult for agrammatic subjects to produce, although some variability is noted in the data presented. It is difficult to compare the results of some of the studies because different structures were investigated and the methods of data collection also varied. More contemporary studies have investigated both production and comprehension in agrammatic aphasic subjects. The results of studies conducted during the past decade are reviewed in later sections of this chapter.

Models and Theories of Normal Sentence Comprehension

If one accepts that aphasic language deficits can be understood by considering normal language functioning, it is necessary to review theories that may explain these deficits. During the last two decades numerous accounts of how normal subjects understand sentences have been offered. Some of these accounts focused on linguistic theory and normal language processing. That is, by comparing sentences with different well-defined characteristics and observing responses to them, investigators have tried to infer the nature of the underlying mechanism of sentence processing. A number of factors relative to how a comprehension mechanism might operate have been considered, including syntax and semantic mechanisms.

Theories of comprehension generally fall into one of two categories: modular views that are data driven (bottom-up) processes or global views that are conceptually driven (top-down) processes. The basic contrast between these views revolves around the notion of *encapsulation of information*, i.e., does input into one component interact with input into another component or not? The components of a modular model are considered to be informationally encapsulated (i.e., components do not interact) whereas the components of a global model are not considered to be encapsulated (i.e., components do interact).

The modular models make clear predictions about the kinds of interactions that would be expected in speech comprehension. For example, lexical and structural processing would not interact during sentence processing until the processes reach the point at which real world knowledge is accessed. A global model would not make such a prediction because this type of model proposes that a central system operates on all kinds of informational input. That is, global models hold the view that sentence interpretation is based on real world knowledge and expectations which are allowed to intervene to assist lexical and structural processing at any point during sentence processing.

Cairns (1984) presented a model of a comprehension system based on the modularity of language theory. This modular model consists of autonomous subprocessors of two different kinds -- one kind that is highly constrained in its operation and one kind that is unconstrained in the kinds of information upon which it can operate. Two constrained linguistic subprocessors are hypothesized -- one lexical and one structural (see Figure 1). This set of subprocessors analyzes only linguistic properties of input and responds only to linguistic information. The output of this set is a literal representation of an individual input sentence which depicts the structural organization of its individual lexical items. The lexical processor initially retrieves items from the internalized lexicon using only phonological information. The structural

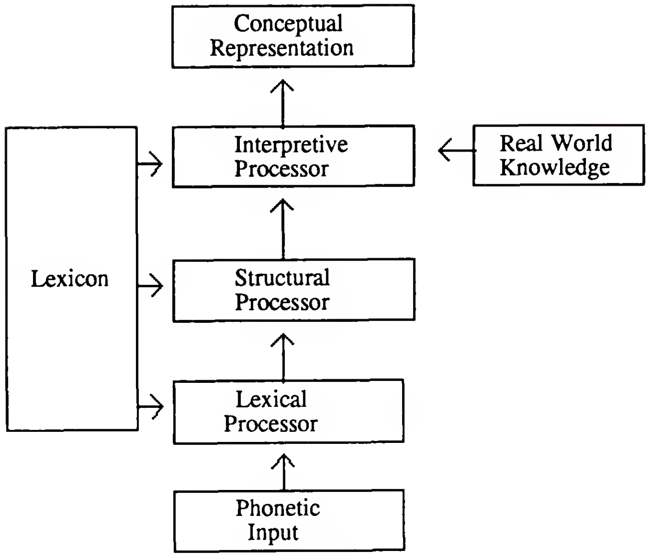


Figure 1. Cairns (1984) model of an autonomous comprehension system

processor creates a structural analysis of a sentence using only grammatical information from the lexicon and the lexical processor. These two processors (lexical and structural) perform all aspects of analysis that are uniquely linguistic. Together these two processors can be thought of as a specialized *linguistic processor* that interfaces with an unspecialized and unconstrained *interpretive processor.* Only the interpretive processor, which employs general cognitive operations, has access to real world knowledge as well as linguistic and nonlinguistic information. Thus, it can make inferences, assess plausibility relationships, resolve ambiguities, and determine nonliteral meanings within sentences.

In contrast, the on-line, interactive, parallel model presented by Marslen-Wilson and Tyler (1980) is an example of a global processing theory (see Figure 2). These authors conducted research on the word-by-word time-course of spoken language in which the range of processing activities are seen as taking place on-line as an utterance is heard. Marslen-Wilson and Tyler claim that the listener tries to fully interpret input as it is heard. That is, recognition of each word in an utterance is influenced by the contextual environment in which it is occurring. The results of these authors' word-monitoring tasks that varied contexts and distributed word-targets across sentence positions provided the evidence upon which their model is based. The model incorporates bidirectional communication channels between every component of the system (speech signal, lexical analysis, structural analysis, interpretive analysis, and meaning). All components are connected to all other components by interactive channels that are used to enable each component to compute the correct analysis of the input. This implies that each component will compute one correct analysis for any given input, thus the system is *optimally efficient.* The computation of analyses normally proceeds with little or no delay and in parallel.

In an entirely different approach, Berwick and Weinberg (1984) presented a theoretical model of natural-language processing that is constrained by linguistic and

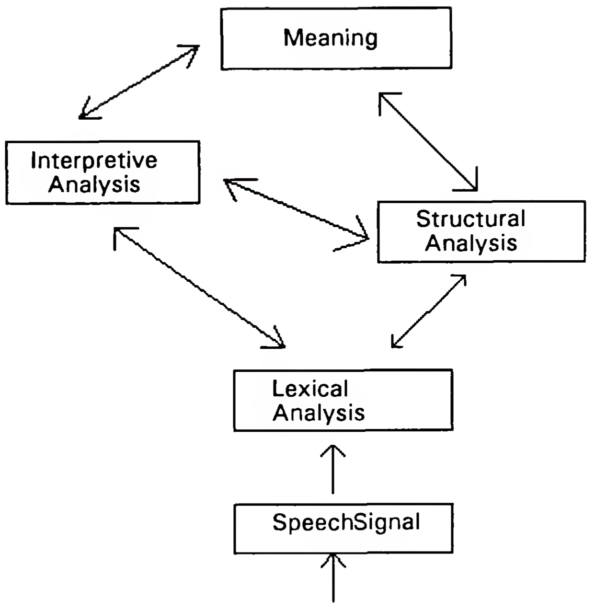


Figure 2. Marslen-Wilson & Tyler's (1980) on-line interactive comprehension model

parsing theory. These authors' *parsing model* deals with syntactic aspects of sentence comprehension and is based on Chomsky's Government Binding (GB) theory as discussed in a later section of this chapter. The task of the *parser* is to assign syntactic structure and theta roles, coindex (link) NPs with their antecedents, and convert the completed phrasal constituents into representations appropriate for semantic interpretation. According to the model, the speech stream is already segmented into discrete words before being input into the parser. The words have been classified as to grammatical category (e.g., noun, verb, etc.) and lexical information has been accessed (e.g., theta roles and selectional restrictions). The parser assigns structure one phrase at a time and temporarily pushes away the constituent it has been working on into a *pushdown stack* before beginning on the subconstituent. When a phrase has been completed and the NPs have received theta roles, it is removed from the syntactic structure to a *propositional list* -- a semantic representation of the predicate-argument structure that corresponds to the level of logical form (LF) in GB theory. The semantic reading is extracted at this level and further interpretive processes occur.

The parser mirrors the syntactic/semantic distinction in GB theory relative to coindexation of NPs with their antecedents. For example, the search for trace antecedents is considered a syntactic process while the search for pronoun antecedents is considered a semantic process. The parser has a limited capacity that is diminished by both storage and processing requirements. It begins with an S (sentence) node for the entire sentence and operations occur in different orders, depending on the definition of a phrase (e.g., trace versus pronoun) and when thematic-role assignment occurs. Parsing processes are initiated as immediately as possible at both the syntactic and semantic levels. That is, a lexico-pragmatic route which contributes to sentence meaning is engaged simultaneously with the operation of the parser.

Just and Carpenter's (1992) *constrained capacity* theory explains how memory capacity accommodates (or fails to accommodate) the computational and storage

demands that occur in language comprehension. This theory is concerned with the way working memory (WM) constrains comprehension and it is based on reading comprehension. The theory proposes that both processing and storage are mediated by activation -- the available pool of operational resources that performs symbolic computations. The total amount of activation available in WM varies among individuals, thus individual differences account for qualitative and quantitative differences in several aspects of language comprehension. One aspect is syntactic modularity -- larger capacity permits interaction among syntactic and pragmatic information such that syntactic processes are not informationally encapsulated (modular) while smaller capacity is more modular. Another aspect is syntactic ambiguity -- larger capacity permits maintenance of multiple interpretations in ambiguous regions of a sentence while smaller capacity does not. Capacity also moderates on-line processing performance of linguistically complex structures. For example, center-embedded object-relative clause structures like, *The reporter that the senator attacked admitted the error*, make large demands on WM capacity. Because the embedded clause (*that the senator attacked*) interrupts the main clause (*The reporter admitted the error*), it requires the main clause to either be retained in WM or re-activated at the end of the embedded clause. In addition, one of the syntactic constituents (the NP *the reporter*) is both the grammatical subject of the main clause and the object of the embedded clause. This clause interruption together with the assignment of a single thematic role concept with two different grammatical roles combine to make object-relative sentences difficult to understand.

Just and Carpenter used a reading comprehension task to measure word-by-word reading times as subjects read sentences containing object-relative clause sentences. A question was then asked to assess the accuracy of sentence interpretation. The results of this task indicated that comprehension performance of individuals with larger WM capacities (as measured by a memory span task) was superior to individuals with

smaller WM capacities. It was postulated that the superior performance of the subjects with larger capacities was due to better ability than subjects with smaller capacities to both process and store the syntactic information necessary for correct interpretation of these particularly complex sentence constructions.

In summary, various language and memory systems appear to be involved in language comprehension. It appears that the grammatical interpretation of a sentence includes a legitimate syntactic structure and accurate assignment of thematic roles to sentence constituents. Regardless of whether a modular or global view of the comprehension process is embraced, the components within each of these views are similar. That is, the process includes lexical and structural analysis and interpretation which must be combined with real world knowledge at some point during processing. It also seems clear that the storage and processing requirements involved in sentence comprehension implicate memory capacity in some way.

Models and Theories of Normal Sentence Production

Errors and dysfluencies that occur in everyday speech such as *spoonerisms* or *slips of the tongue* (e.g., *heft lemisphere* for *left hemisphere*, *peach seduction* for *speech production*) have provided a basis for developing models of the language processing system (Fromkin, 1971; Garrett, 1980/1982; Goldman-Eisler, 1968). Methods also have been developed for experimental investigation of the cognitive or information-processing correlates of these speech errors and other types of language variation (Bock, 1982; Bock & Loebell, 1990; Bock & Warren, 1985; Dell, 1986; Kempen & Hoenkamp, 1987; MacKay, 1982).

Pick (in Goodglass, 1976) viewed the development of a sentence in terms of a *conceptual phase* followed by a *linguistic phase*. The first step in the conceptual phase is the global idea beginning with a preverbal awareness of the sentence's general intent followed by a schematization of the sentence. This schema includes a sense of melody and word order without a precise choice of words. The linguistic phase begins with

activation of the sentence framework and proceeds with the selection of the actual verbal content that is adapted to fit the sentence schema.

A more contemporary theory that looks at sentence production was presented by Goldman-Eisler (1968). Goldman-Eisler's model is based on hesitation phenomena observed in experimental studies of lexical retrieval in sentence production. This model elaborates the basic contrast between automatic verbal behavior and the creative or interpretive processes of thinking which underlie language (as emphasized by Hughlings Jackson). Observation of hesitation and rate in spontaneous speech led this author to associate processes in the planning of an utterance with either the creative, voluntary aspect or the automatic, routinized aspect. Goldman-Eisler related the processes of syntactic organization and articulatory function to the automatic stage of language production. Lexical selection and determination of conceptual relations were considered to be related to the voluntary stage.

Fromkin (1971) presented a model that was based on speech error phenomena, i.e., analysis of speech errors and observations about the formal linguistic structure of language. This model provided a specification of meaning in terms of nonlexical semantic primitives (global concepts) rather than representations that are identifiable with specific surface vocabulary items. The model begins with a specification of a meaning representation that is mapped by a series of processes into an utterance. Syntactic structuring of the meaning representation is accomplished by associating semantic features with syntactic roles in the sentence. An intonation contour then is assigned to this structure, including both syntactically dictated intonational features and interpretively based features (e.g., contrastive and emphatic stress). Fromkin's model includes two aspects of lexical selection: semantically directed aspects and syntactically dictated aspects.

The basic contrast between these two models is that Goldman-Eisler's attention was on differentiation of conceptual and sentence level processes in real-time control of

speech while Fromkin's attention was on the details of sentence level formulation only (the meaning representations required were assumed). Neither model provided much detail about either the conceptual or sentence formulation processes involved in sentence production.

Fromkin's model has the same general structure of Garrett's (1980/1982) model that is also based on speech errors. Garrett identified four error types: a) semantic substitutions that occur with content words and certain prepositions (e.g., *boy* for *girl*, *black* for *white*); b) word exchanges that affect content words in similar categories but not within a single phrase (i.e., nouns exchange with nouns, verbs with verbs, etc., e.g., *he is planting the garden in the flowers* for *he is planting the flowers in the garden)*; c) sound exchanges that affect adjacent content words in different categories within a single phrase (e.g., *shinking sips* for *sinking ships*); and d) stranding errors that leave bound morphemes in an original position while the word stem to which it was attached is moved elsewhere (e.g., *he is schooling to go* for *he is going to school*).

In Garrett's model, the general components of language production are (a) a message level, (b) a sentence level, and (c) an articulatory level (see Figure 3). The initial component (the message level) is viewed as the real time conceptual construct based on a speaker's current perceptual and affective states and general world knowledge. The message level is not a linguistic level but rather one at which a grammatical category search for open class lexical items (basic concepts to be conveyed) occurs.

The second component (the sentence level) is viewed as the real time construction of representations required for the logical and phonological specification of sentence form. The sentence level is the first truly linguistic level at which basic concepts are replaced with lexical items. Lexical semantic representations are accessed and thematic roles or meaning aspects are assigned at this level. In addition, information about the form of words and sentences is specified, the syntactic form of

I. Message Level

(Inferential Processes)

Select lexical items
Select functional argument structure

II. Sentence Level

(Logical, Syntactic, and Phonological Processes)

A. Functional level representation

Retrieve lexical forms
Assign thematic roles in predicate-argument structure
Construct pholological representations

B. Positional level representation

Specify phonetic detail of lexical elements
Insert lexical elements into syntactic frame

III. Articulatory Level

(Phonological Motor Coding Processes)

Construct articulatory representation

Figure 3. Garrett's (1981/1982) model of sentence production

the sentence is produced, and phonological forms are inserted into appropriate positions in the syntactic structure.

Finally, the third component (the articulatory level) is concerned with translation from sentence level structures to articulatory structures. That is, specific phonological representations are transformed into a series of commands to the vocal apparatus (e.g., control of the respiratory and articulatory systems).

Numerous procedures are applied within each of these three components. At the message level, lexical items are identified and functional structures are selected in order to construct the first language specific level of representation -- the syntactic level. Lexical meanings at the message level are not expressed in terms of definitions, but rather in terms of meaning postulates. It is at the next level (the sentence level) where conceptual information is translated into sentence form.

The sentence level involves two separate processes -- functional and positional. Several processes occur at the functional level. First, lexical forms are retrieved and assigned to phrasal sites. Then, positional structures are selected (e.g., stress and closed class vocabulary). Finally, frame elements are assigned thematic roles in the predicate-argument structure (e.g., noun=agent of action or subject of predicate). These functional level processes are organized by verb dominated groups into clause size units of semantically specified lexical items and they are developed by elaboration of a verb and its phrasal arguments. In other words, it is at this level that the phonological representation is constructed to reflect the utterance order directly. Only the semantic-syntactic identity of the words to be spoken is available, not the pronunciation. Semantic substitution and word exchange errors, which affect only content words, are proposed to occur at the functional level.

The pronunciation representation is constructed at the positional level and the phonetic detail consequent on regular phonological processes is specified. Phrase size units are created at this level through insertion of phonologically specified lexical

elements into a syntactic frame containing bound and freestanding grammatical elements. Sound exchange and stranding errors are proposed to occur at this level, thus Garrett identified the positional level as the locus of possible breakdown in agrammatism.

Finally, procedures are applied to phonetic level representations within the articulatory level to construct an articulatory representation. Garrett's model presents a strictly top-down (conceptually driven) analysis of sentence production and implies serial staging of levels. That is, no feedback is provided from the positional to the functional level, but these levels could develop in parallel.

Garrett's model does not explain or describe the factors that would determine which syntactic frame would emerge at the positional level, nor the factors that support the *mapping* from logical to grammatical roles that are purported to occur to create this level. Lapointe (1985) did specify the mechanics of a mechanism -- a syntactic processor -- that carry out the functions at the positional level. Lapointe asserts that the syntactic processor consists of a control mechanism that receives information about the representations from the functional level. This information is sent to an *address index* that finds a corresponding location of appropriate sentence fragments and function words. When a location is found, the information is then sent to a locator that requires energy to find the fragments and function words before returning that information to the control mechanism. The control mechanism finally sends the information to the stem inserter which assembles representations from the functional level with appropriate inflections. Lapointe attributes the lack of function words in agrammatic speech to a lack of the energy required by the locator to complete the necessary search.

Kempen and Hoenkamp (1987) made some modifications to Garrett's model and proposed an Incremental Procedural Grammar (IPG) for sentence formulation. This IPG theory analyzed complex syntactic constructions of the Dutch language such as object complement clauses, interrogatives, and coordinate structures. These authors

proposed that function words are inserted at the functional level, not the positional level as proposed in Garrett's model. Kempen and Hoenkamp purport that sentences are built in parts (*modules*) at the functional level. Each module built chooses its syntactic elements (function words) and lexical elements (content words) simultaneously according to a set of rules. When this selection has taken place within each module, the modules are combined into a sentence. It is this information that is subsequently sent to the positional level where syntactic representations are converted into phonological units. In other words, sentences are not built by a central constructing agency that overlooks the whole process, but rather by a team of syntactic procedures that work in parallel on sentence parts.

Other authors have presented sentence production models that are more interactive in nature than those presented thus far (Bock, 1982; Bock & Loebell, 1990; Bock & Warren, 1985; Dell, 1986; MacKay, 1982). Bock and colleagues hypothesized that syntactic and lexical processes occur simultaneously in sentence production. However, Bock (1982) postulated that lexical processing affects syntactic processing. This author believes that lexical elements contain information about relational roles -- the representational functions necessary for selecting appropriate lexical concepts (e.g., abstract features such as verb transitivity, tense or type). When these roles are specified, that information is sent to the syntactic processor. The lexical elements are then inserted into a syntactic frame and phonological representation occurs at a point later in production.

The concept of sentence frames was furthered by Bock and Loebell's (1990) study of priming effects in normal subjects. The priming technique employed involved listening to and immediately repeating a sentence in one or another of a syntactic form. A picture was then presented and subjects were asked to describe the event depicted. The syntactic forms of the picture descriptions were subsequently analyzed. The authors hypothesized that if variation in sentence form is dependent on variation in

conceptual structure, the magnitude of the priming effect would change as a function of conceptual change. For example, prepositional datives containing dative verbs that require both a theme and a beneficiary as arguments (*The wealthy widow gave an old Mercedes to the church)* would be better primes for production of prepositional datives than prepositional locatives containing motion verbs that require either a theme or a location (*The wealthy widow drove an old Mercedes to the church*). If variations in sentence form depend on the structure of the primes and not the nature of the encoded events, prepositional datives and locatives would be equally reliable primes for prepositional datives. The results of the priming task indicated that there was no effect of conceptual differences on structural repetition. That is, there was little difference between the dative and the locative priming conditions, both of which showed increased use of the prepositional dative form. Bock and Loebell concluded that sentence frames are independent syntactic representations that are not related to thematic roles (conceptual information).

Bock and Warren (1985) hypothesized a *hierarchy of grammatical relations* (e.g., subject, direct object, indirect object) that corresponds to accessibility. These authors suggested that the most accessible element becomes subject, the next most accessible becomes the direct object, etc. This study focused on accessibility of concepts by testing the recall of simple declarative, dative, and phrasal conjunct sentence types in 64 undergraduate college students. Two forms of each sentence type were investigated: declarative active (*The doctor administered the shock)* and passive (*The shock was administered by the doctor*); dative prepositional (*The old hermit left the property to the university*) and double object (*The old hermit left the university the property*); and phrasal conjunct in natural order (*The lost hiker fought time and winter*) and unnatural order (*The lost hiker fought winter and time*). In order to investigate the effects of imageability of the constituents representing the three levels of the hypothesized relational hierarchy in each of the three sentence types, imageability of

either the subject and direct object or the direct and indirect object constituents differed. Declarative sentence pairs' target nouns were surface subject and object NPs, dative sentence pairs' targets were direct and indirect object NPs, and phrasal conjunct pairs' targets were the two NPs in the conjunctive NP. Half of the target nouns for each sentence type were high in imageability and half were low. A prompt list containing the 48 sentences main verbs was constructed. Subjects listened to lists of 12 sentences and then were required to recall a set of eight digits in order. The experimenter subsequently read the appropriate prompt list and allowed time between prompts for subjects to write the corresponding sentence presented earlier. The results of the written recall task indicated that there was no effect of imageability for any of the three sentence types. Left-to-right order of constituents was related to conceptual accessibility only in the declarative and dative sentences, thus the authors concluded that accessibility was tied to grammatical role assignment rather than ordering of sentential constituents. That is, assignment of grammatical roles occurs at a different point than determination of word order. Based on these findings, Bock and Warren purported that conceptual effects on syntax occur at the functional level in Garrett's model.

A hierarchical theory to account for fluency in speech production was proposed by MacKay (1982). This author examined the effects of practice on fluency and the relationship between speed and accuracy in production of normal and scrambled sentences and nonsense strings. The theory presents a hierarchy of nodes that represent cognitive units (words and phonemes) and their order of activation. According to MacKay, syntactical nodes responsible for sentence formulation are organized into independent (a) conceptual, (b) phonological, and (c) muscle movement systems. These three systems consist of different types of nodes that are activated in particular orders. MacKay hypothesized that nodes within the systems are interconnected and can be primed. Priming occurs when increased activation in one node carries over into

another. Increased activation between nodes results in increased linkage strength. Timing nodes organize and connect the systems in order to produce a sentence when construction within each system is completed.

Dell (1986) endorsed a similar *spreading activation theory* with an emphasis on the retrieval of the phonological form of words. This theory is based on speech production errors -- slips of the tongue defined as unintended, nonhabitual deviation from a speech plan -- and phonological encoding processes -- the processes by which speech sounds that compose a morpheme or string of morphemes are retrieved, ordered, and organized for articulation. For example, some possible phonological errors in the sentence, *Some swimmers sink*, are (a) *Sim swimmers sink* (phoneme anticipation), (b) *Swum simmers sink* (phoneme shift), (c) *Some simmers sink* (phoneme deletion), and (d) *Sim swummers sink* (phoneme exchange). On the basis of observed and experimentally elicited phonological errors, Dell's model assumes that the words required for an utterance retrieve or activate the phonological elements to which they are linked. Because retrieval processes work in both directions, elements feed activation back to the units that initially activated them, and these units in turn increase activation at lower levels. Focusing on retrieval during sentence production, three types of linguistic knowledge are hypothesized in Dell's theory: (a) lexical information, (b) categorically specified rules, and (c) insertion rules. Dell proposed that internal representations of thought are organized in hierarchical levels, wherein, higher levels (e.g., syntactic) must be constructed before lower levels (e.g., phonological). These levels are governed by rules composed of individual frames with slots for components. Dell purported that only lexical information comprises a network of nodes that specify concepts, words, and morphemes and this information is retrieved by spreading activation. That is, when a high level node is activated, its activation spreads to surrounding lower level nodes. It is this information that is inserted into the frame slots so that production of a sentence can occur. Speech errors in Dell's theory

are not seen as malfunctions, but rather as the consequence of the need for language production to be productive.

In summary, as is the case with regard to sentence comprehension, the process of producing a sentence appears to involve coordination of several systems (conceptual, lexical, syntactic, phonetic). The individual units within each system must be ordered in time to successfully communicate the speaker's intended message. Although the models presented here differ, mostly concerning how much each of the system components interact with each other, they all seem to agree with the following notion: lexical elements must retrieved, syntactic plans must be formulated, and these elements and plans must be coordinated with each other in a systematic manner.

Sentence Comprehension in Aphasia

As with theories of normal sentence comprehension, there are varying accounts of how comprehension of sentences breaks down in agrammatic aphasic patients. Nonsyntactic accounts of agrammatic comprehension have been proposed (Bradley, Garrett, & Zurif, 1980; Kean, 1977; Lapointe, 1983). These authors have placed the locus of impairment at lower level components of grammar (e.g, phonological, morphological, or lexical components). Several other studies have indicated that the pattern of spared versus impaired comprehension in Broca's aphasia is suggestive of a linguistic deficit that reflects complete or partial loss of syntactic competence (Caplan & Futter, 1986; Caramazza & Zurif, 1976; Grodzinsky, 1984; Gallaher & Canter, 1982; Heilman & Scholes, 1976; Schwartz et al., 1980; Shewan & Canter, 1971). That is, Broca's aphasic subjects evince difficulty with comprehension of sentence types in which only syntactic cues are available to assist correct interpretation (e.g., reversible passive, object-relative, and object-cleft constructions). Caramazza and Berndt (1985) termed this pattern *asyntactic comprehension.*

Studies in the area of asyntactic comprehension fall into those that investigate (a) sentence processing (on-line tasks) and (b) sentence comprehension (off-line tasks).

The experimental paradigm employed in on-line studies typically involves dual-task interference paradigms (word monitoring, lexical decision, or lexical priming tasks). For example, a word monitoring task generally involves presenting the subject with a target word (probe) of interest prior to a stimulus sentence. The subject is then instructed to listen to the sentence for meaning while also listening for the specified target word within the sentence. The subject is required to respond by pressing a computer key as soon as the target word is heard. Cross-modal lexical decision (CMLD) and cross-modal lexical priming (CMLP) tasks also require subjects to listen to sentences for meaning under headphones. At the same time, a visual display of a letter string (probe) is presented via computer in whatever area of the sentence is of interest and the subject is instructed to make a lexical decision (word/nonword judgment) by pressing a computer key. Lexical decision reaction times (RTs) to the probe words are measured and analyzed to reflect lexical access time (in the case of the CMLD task) or lexical priming effect (in the case of the CMLP) task. Although these on-line tasks do not purport to measure sentence comprehension, subjects are usually required to occasionally repeat or paraphrase the stimulus sentences that they have been instructed to listen to for meaning.

Off-line sentence comprehension measures typically involve sentence-picture matching or verification tasks or object manipulation tasks. In matching tasks, subjects are presented with pictures and instructed to choose the one that corresponds to a spoken or printed sentence. Sentence verification tasks require subjects to listen to or read a sentence and indicate whether the picture presented corresponds with the sentence. Studies that employ object manipulation techniques generally require subjects to listen to a stimulus sentence and subsequently act out the meaning by manipulating objects (e.g., toy animals or humans).

These two methods of investigating asyntactic comprehension look at very different processes. Subjects are generally unaware of the how the stimulus sentences

they are listening to may influence their lexical decision RTs in on-line tasks. During off-line comprehension tasks, subjects are generally very much aware of how the stimuli influence their response in terms of the strategies they employ to aid in interpretation. That is, on-line sentence processing is primarily reflective of an unconscious, automatic process while off-line sentence comprehension reflects a conscious, volitional process. The studies that have utilized on-line tasks to investigate sentence processing will be discussed first before considering what can be inferred from those studies relative to others that investigate sentence comprehension using off-line tasks.

On-line Sentence Processing Studies

Swinney, Zurif and Cutler's (1980) study suggested that agrammatic Broca's aphasic subjects' disrupted comprehension of closed class vocabulary resulted in their inability to use this vocabulary appropriately for syntactic processing. This study used a word monitoring task to ascertain the effects of word class on comprehension with eight agrammatic Broca's aphasic and normal listeners. Mean RTs were computed for open and closed class probe words. Results indicated no effect of word class for the normal control group while the agrammatic Broca's aphasic subjects did demonstrate an effect of word class in that open class words were responded to more rapidly than closed class words.

Friederici (1985) also investigated the relationship between these vocabulary types using a word-monitoring task. This task varied the target's word class (open and closed) as well as the closed class elements (prepositions and verb particles) in seven German Broca's aphasic and 48 normal subjects. Response times and error rates were recorded for word class and closed class elements. Results indicated that the agrammatic subjects responded more slowly to closed than to open class items while normal subjects performed in the reverse manner. This finding suggested that the agrammatic patients were not able to process all of the relevant information in a

sentence at the structural level, thus the parser delivered an incomplete output to higher processing levels. The results of this study were consistent with the results of Swinney et als.' (1980) study and supported a computational distinction of open and closed class vocabulary. That is, these two word classes appear to require different access routines, thus a specialized closed class retrieval system is purported to be activated when closed class elements are processed in sentential context. The data from Friederici's study suggested that the Broca's aphasic subjects lacked the functional underlying open/closed class vocabulary distinction that is used in word recognition by normal listeners.

Zurif, Swinney and Garrett (1990) suggested that, in agrammatism, (a) parallel access to multiple word meanings can no longer be sustained, or (b) processing operates with a slower than normal rise time. In either case, the sentence comprehension device is provided with an impoverished lexical data base for subsequent processing. These conclusions were based on a comparison of agrammatic and paragrammatic patient groups with a control group in a CMLP task. The variation of this CMLP task included ambiguous nouns with two or more meanings that were primed for both meanings. These ambiguous were presented in either related or unrelated contexts and depended on the effects of lexical priming (facilitation in processing a word due to having heard a related word). The lexical decision probes were presented immediately after the subject had heard the target word in the aurally presented sentence and one and a half seconds after the target word. RTs were measured for both immediate and delayed presentation of the probe. For example, sentences like, *The man saw several spiders, roaches, and other bugs in the corner of his room*, were assessed for priming for both meanings of the probe word *bugs*--the contextually relevant (related) insect sense (e.g., *ant*) and the contextually irrelevant (unrelated) espionage sense (e.g., *spy*). Analysis of RTs indicated that the control and paragrammatic groups showed priming for both meanings of the probe word (*ant* and *spy*), regardless of contextual information, upon immediate presentation and priming

only for the contextually relevant interpretation (*ant*) with delayed presentation. This result was taken to indicate that for these subjects, lexical access during sentence comprehension is initially autonomous (contextually impenetrable) and involves exhaustive retrieval of interpretations for lexical items. Thus, contextual information affected lexical processing only after access was achieved with delayed presentation. In contrast, the agrammatic group showed priming only for the most frequent meaning (*ant*), regardless of context or whether the probe was presented immediately after the target word or delayed. Thus, the authors concluded that lexical access in agrammatism remains context free (informationally encapsulated) either as a result of slowed processing time or inability to access multiple word meanings.

Shapiro and colleagues have undertaken numerous studies relative to lexical properties and the sentence processing devices that implement them in both normal and brain-damaged subjects. Shapiro's 1992 paper summarized the lexicon as being organized so as to make distinctions between various levels of representation of nouns and verbs. Shapiro et al. postulate that agrammatic Broca's aphasic patients appear to have protracted activation of nouns with multiple representations (consistent with Zurif et al., 1990) but that this may not extend to verbs.

Shapiro and Levine (1990) used a cross-modal lexical decision (CMLD) task to examine verb processing in order to determine sensitivity to the *argument structure* arrangement of verbs. Verb argument structure information involves knowledge about how verbs are *coded* to require or accept certain thematic roles. The concept of argument structure is elaborated in detail later in the discussion of Chomsky's GB theory. This study assessed activation of argument structure in Broca's aphasic subjects who were agrammatic in comprehension as well as production, fluent aphasic subjects, and normal controls. The results of the RT measures indicated that two of the three subject groups (Broca's aphasics and normal controls) activated multiple argument structure possibilities for a verb in the vicinity of the verb as reflected by longer RTs

for more complex verbs (those that require or allow more argument structure possibilities). The fluent group did not show this sensitivity. The authors interpreted these findings as suggesting that the fluent patients had a semantic-like sentence processing deficit and that the sentence comprehension problems shown with agrammatic Broca's subjects may not be related to real-time processing of verbs and their arguments, at least in the simple sentences used in the study. The general lexical access deficit claimed to be part of agrammatism may not extend to verb processing in simple sentences; however, verb processing may break down with more complex sentences.

Prather, Shapiro, Zurif and Swinney (1992) raised the possibility that the cortical area implicated in Broca's aphasia sustains time based operating characteristics that in turn sustain normal real-time parsing. These authors sought to show that left anterior damage causes slowed information access. The manner in which this slowing might yield some of the syntactic limitation in Broca's aphasia was discussed. For example, Grodzinsky (1984/1986/1990), as previously discussed, argued that aphasic subjects cannot represent traces, thus they cannot use grammatical rules to assign thematic roles to moved sentence constituents. Prather et al. propose that the requirement of linking antecedents and traces may be an operation that is implemented under strict time constraints, therefore, it would be expected to be disrupted during processing of sentences in which constituents have been moved. This proposal appears to be supported by the results of the following study.

Zurif, Swinney, Prather, Solomon and Bushell (1993) used the CMLP paradigm to investigate four Broca's and four Wernicke's aphasic patients' ability to link moved sentence constituents with their traces. The study employed subject-relative constructions that involve movement of wh-elements from one position in the sentence to another. For example, in the sentence, *The gymnast loved the professor from the northwestern city who complained about the bad coffee*, the wh-element (*who*) occupies

the subject position in the relative clause (*who complained about the bad coffee*) and co-refers to *the professor* which has moved to the direct object position in the independent clause (*The gymnast loved the professor from the northwestern city*). Thus, *the professor* must be linked to *who* to preserve its thematic role assigned by the verb *complained.*. The lexical decision probe words employed were either semantically related (e.g., *teacher*) or unrelated (e.g., *address*) to the target word (*professor*). In order to measure reactivation of the moved constituent (*professor*), priming was examined immediately after the wh-element (*who).* Priming was also examined for each of the 48 auditorally presented sentences immediately before the wh-element (*who*) to allow for measurement of any nonsyntactic priming effects. Priming was determined at each position by comparing RTs for the related (experimental) and unrelated (control) probes. Analysis of the data indicated that the Wernicke's group showed priming for the experimental probes presented after, but not before, *who* while the Broca's group did not show priming for the experimental probes at either point. Zurif et al. concluded that the performance of the Broca's subjects was due to disruption of automatic lexical reactivation (access) as a result of slowed processing time.

Tyler's (1985) proposal is at odds with almost all of the current syntactically based accounts of agrammatic comprehension which assume difficulty in constructing phrasal constituents. This author used a word monitoring task with one agrammatic aphasic subject in two experiments that investigated (a) the construction of global syntactic and semantic representations and (b) structural relationships between verbs and their arguments. The first experiment investigated syntactic and interpretative representations across an utterance in three types of prose contexts -- (a) normal prose in which both syntactic and semantic structural information were available (e.g., *The church was broken into last night. Some thieves stole most of the <u>lead</u> off the roof.*), (b) anomalous prose in which prose was grammatical but semantically anomalous (e.g.,

The power was located in great water. No bun puzzle some on the lead off the text.), and (c) scrambled strings in which there was neither syntactic nor semantic structural information (e.g., *In was power water the great located. Some the no puzzle buns in lead text the off.*). Target words were probed in different serial positions (e.g., early, middle, or late) within sentences to allow assessment of different sources of processing information. Normal subjects tested with this paradigm produced faster RTs to targets in normal prose than in anomalous prose which were in turn faster than scrambled strings. RTs also were faster to words occurring later in the sentence for normal and anomalous prose but not scrambled strings. Tyler proposed that normal subjects perform in this manner because the interpretative and/or syntactic structure in normal and anomalous prose develops across the sentence and facilitates the word recognition process whereas the lack of structural basis does not allow facilitation in scrambled strings. The agrammatic subject's RTs were consistent with normal subjects' performance across the three prose conditions, thus Tyler concluded that the subject was able to use semantic structural information in on-line interpretation. Where the subject's performance deviated from normals was in the effects of word position in anomalous prose. That is, his RTs did not differ significantly in early, middle, or late positions in a sentence -- a pattern that contrasted with normal latencies that got faster throughout the sentence. Tyler concluded that this result was due to the subject's inability to develop a global syntactic structural representation of an utterance in spite of his ability to construct local syntactic phrases as attested to by his RTs in the normal prose condition. The author suggested that these results support the claim of a syntactic basis for agrammatic comprehension which locates the deficit in real-time analysis of speech input rather than at a later stage of processing. The contrast between the subject's lack of a word-position effect in anomalous prose and its presence in normal listeners is a qualitative difference that could be interpreted as evidence of a separate syntactic knowledge source.

Tyler's second experiment examined the distinctions between the syntactic and semantic information used in the first experiment. Sentence violations (disruptions of verb-argument relations) confined to adjacent elements were presented in four conditions -- (a) undisrupted (normal) verb and object noun relationship (e.g., *The crowd was waiting eagerly. The young man grabbed the* *__guitar__* *and*...), (b) selectional restriction violation with an abnormal semantic relationship between verb and object noun (e.g., *The young man drank the* *__guitar__*...), (c) subcategorization violation with an abnormal syntactic relationship between verb and object noun (e.g., *The young man slept the* *__guitar__*...), and (d) non linguistic anomaly with an abnormal pragmatic relationship between verb and object noun (e.g., *The young man buried the* *__guitar__*...). Normal listeners' RTs were fastest for the undisrupted condition and slowest for the subcategorization condition. Normal RTs also were faster for the pragmatic anomaly condition than the selection restriction violation condition. The agrammatic subject's RTs were not significantly different from normals in all conditions except for non linguistic (pragmatic) anomalies which indicated that the subject made use of both syntactic and semantic co-occurrence restrictions attached to verbs. The subject's response to pragmatic anomalies, which had the smallest disruptive effect in normals, produced the largest disruptive effect for him. This difference was taken to imply that the subject was more dependent upon pragmatic information than normal listeners. Tyler concluded that the subject attempted to derive a pragmatically coherent interpretation of these utterances with respect to discourse context and his knowledge of the world. In an off-line version of this experiment, the subject appeared to be equally aware of the different types of violations in that he correctly rejected 71% to 83% of the disrupted sentences. That is, he named either the verb or the object noun when asked to explain why a sentence was wrong, indicating that he had chosen the correct location of the anomaly. Interestingly, his response to undisrupted sentences was less

accurate than disrupted ones in that he considered more than a third of the normal sentences to be bad sentences.

In an attempt to clarify the local versus global issue raised in Tyler's (1985) study, Baum (1989) designed an experiment to address syntactic complexity in constructions that incorporated local or long-distance syntactic dependencies. Local dependency was defined as one occurring with a clause (e.g., verb-argument relations or reflexives) whereas long-distance dependency was defined as one crossing a clause boundary (e.g., relative clauses). The latter dependency was considered more complex than the former due to processing requirements. That is, crossing a clause boundary requires retention of syntactic information in memory until the dependency is completed (i.e., the syntactic gap is filled). Baum employed a word monitoring task with seven agrammatic Broca's aphasic and ten normal subjects. Subjects were instructed to listen to a target word prior to listening to an ungrammatical sentence and to subsequently respond by pressing a key as soon as the target word was heard in the ungrammatical sentence. The words which caused the ungrammaticality served as the target words. Sentence stimuli consisted of six sentence types demonstrating different types of ungrammaticality -- three demonstrated violations of local syntactic constraints (e.g., subcategorization, auxiliary agreement, reflexives) while the remaining three included violations of long-distance dependencies (island violations-coordinate structure constraint, filled wh-question gaps, filled relative clause gaps). Two versions of each stimulus were created -- one with the violation close to the word on which it depended and one with the violation occurring at least four words downstream. The word that caused the ungrammaticality served as the probe for all and RTs to probe words were measured at both violation points in the sentence. The results demonstrated an increase in RT to probes in ungrammatical contexts in all conditions for the normal subjects. In contrast, the agrammatic subjects demonstrated a sensitivity only to violations of local syntactic dependencies. These results were in accord with Tyler's (1985) results and

appear compatible with Grodzinsky's trace deletion hypothesis relative to processing sentences that contain gaps or traces of moved constituents. The dichotomy of performance between local and long-distance dependencies suggested a distinction in the way agrammatic aphasic subjects process these two types of syntactic dependencies. It follows then that agrammatic subjects may be able to access some syntactic information, but not be able to use that information in comprehension tasks. Baum interpreted the results of this study as supporting a processing rather than a structural deficit on the basis of the dichotomy of performance. That is, if the deficit were structural, the syntactic constructions should have been misanalyzed every time they were to be processed or accessed in both local and long-distance syntactic dependencies.

In summary, the studies using on-line tasks to investigate sentence processing seem to implicate deficits in the speed and accuracy at which processing occurs and/or the ability to process both open and closed class vocabulary as well as complex syntactic constructions with moved elements. In either case, the output of the sentence processing device to higher levels of sentence interpretation is, at best, incomplete.

Off-line Sentence Comprehension Studies

A majority of the studies that have used off-line comprehension tasks claim that agrammatic comprehension is due to impairment at the level of syntax. Many of these studies illustrate that when meaning facilitates comprehension, agrammatic aphasic patients perform above chance level, but when semantic bias is controlled their performance is often at chance level (Bates, Friederici & Wulfeck, 1987a; Caplan & Futter, 1986; Caramazza & Zurif, 1976; Gallaher & Canter, 1982; Heilman & Scholes, 1976; Schwartz et al., 1980; Shewan & Canter, 1971).

Goodglass, Gleason, and Hyde (1970) were among the first to demonstrate that multiple factors affect aphasic individuals' ability to comprehend language. These authors investigated four aspects of auditory comprehension in 44 normal children, 12

normal adults, and 52 aphasic subjects of five types (Broca's, Wernicke's, conduction, anomic, and global). They studied breadth of vocabulary, auditory sequential pointing-span, and comprehension and recognition of correct grammatical usage of directional prepositions. Vocabulary was assessed with the Peabody Picture Vocabulary Test (PPVT; Dunn & Dunn, 1959), prepositions were assessed with picture-pointing and sentence/picture verification tasks, and pointing-span was assessed by having subjects listen to a series of nouns before pointing to their corresponding pictures in the same order as the series was presented. Results of the study indicated that aphasic subjects' patterns were different from those of the children and that the patterns of disturbance were characteristic for the different aphasic groups, (i.e., they could be distinguished from each other). The noteworthy feature of the Broca's group was their poor performance on the pointing-span task versus their relatively good performance on the other tasks. The authors suggested that while the other three tasks were more purely comprehension, the span task entailed some form of production. That is, it was necessary to reproduce, at least at an inner level, the words heard in order to point to them in the correct order.

Shewan & Canter (1971) compared three groups of 27 aphasic subjects (Broca's, Wernicke's and amnesic) with nine normal control subjects on a test of auditory comprehension of sentences that varied in length, vocabulary difficulty, and syntactic complexity. A total of 42 sentences at three levels of difficulty for each of the three parameters measured resulted in seven types of sentences. One type of sentence contained the shortest length, easiest vocabulary, and simplest grammatical construction. The other six types altered one level of one of the three parameters to produce either a moderate or hard degree of difficulty with only one level of one parameter permitted to vary in any sentence type. The three levels of syntactic complexity were (a) simple active declarative with no transformations, (b) either a negative or passive transformation, and (c) both a negative and passive transformation.

Subjects were presented with four pictures for each sentence, one of which corresponded to the test sentence while the remaining three differed from the correct representation in only one critical item. Test sentences were read aloud and subjects were instructed to point to the picture that matched the test sentence. Results indicated that the aphasic subjects differed from the normal controls in quantitative but not qualitative aspects of performance. All of the aphasic subjects were most accurate on the sentences at the easiest level of difficulty with Wernicke's subjects' performance being the poorest and amnesic subjects' performance being the best. The aphasic subjects experienced the least difficulty with the vocabulary parameter and the greatest difficulty with syntactic complexity. Thus the authors concluded that syntactic complexity contributed to comprehension problems to a greater degree than either sentence length and vocabulary difficulty in the aphasic subjects.

Two similar studies also investigated aphasic subjects' ability to comprehend specific syntactic structures (Lesser, 1974; Parisi & Pizzamiglio, 1970). Parisi and Pizzamiglio studied four groups of 60 Italian aphasic subjects (Broca's, Wernicke's, anomic, and mixed/global) and compared them to 3 and 6-year old children. The sentence comprehension test used included 80 sentences employing 20 syntactic contrasts (e.g., prepositions, reversible subject/object in active and passive voice, relative clauses, singular/plural, affirmative/negative, present/past and present/future tense, reflexives, and pronouns). Subjects were presented with two pictures per item and instructed to point to the picture that corresponded to the spoken sentence. Results indicated a hierarchy of difficulty of syntactic contrasts that was similar for all the aphasic subjects and which correlated with the order of acquisition of these structures in the children. For example, preposition contrasts were easiest while subject/object reversible and relative clause sentences were most difficult.

Lesser (1974) used an English version of the test developed by the Italian authors with 15 aphasic subjects and obtained similar results. The results of Lesser's

study supported Shewan and Canter's (1971) results which suggested that syntactic complexity rather than sentence length made comprehension more difficult for aphasic subjects.

Naeser, Mazurski, Goodglass, Peraino, Laughlin and Leaper (1987) also investigated auditory syntactic comprehension ability in nine aphasic groups composed of 60 subjects and a group of 42 children aged three and six years. These subjects were tested on 80 sentences composed of ten syntactic contrast pairs (e.g., gender, locative preposition, negation, object and subject number, past/present and future/present progressive tense, subject/object reversible, subject/verb agreement, and relative clause subject/object). For each stimulus sentence, four pictures were presented representing (a) the correct picture, (b) the syntactic contrast picture, (c) a closely semantically related picture, and (d) a remotely semantically related picture. The subjects were instructed to point to the appropriate picture to match the sentence spoken. The results of this study indicated that there were differences in degree but not order of difficulty between the aphasic groups and the children. For example, subject/object reversible and relative clause sentences were observed to be the most difficult for all subjects in the study. In addition, although the most severe deficits were associated with Wernicke's and global aphasic subjects, the other aphasic groups (e.g., Broca's, subcortical, transcortical motor, and conduction) exhibited syntactic comprehension problems with the same overall rank order of difficulty as the two most severely impaired groups. Naeser et als.' findings appear to conflict with Goodglass et als.' (1970) finding that different aphasic groups could be distinguished from each other.

Caramazza and Zurif (1976), using a sentence-picture matching task, assessed comprehension of three types of object-relative center-embedded sentences--sentences with semantic cueing (e.g., *The apple that the boy is eating is red.*), sentences without semantic cueing (e.g., *The girl that the boy is hitting is tall*), and sentences with

improbable propositions (e.g., *The dog that the man is biting is black*). Five each of Broca's, conduction, and Wernicke's aphasic subjects were presented with two pictures and asked to choose the one that matched an auditorally presented sentence. Results of the study indicated that the Broca's subjects had the most difficulty with the sentences without semantic cueing (semantically neutral), thus the authors claimed that the comprehension failure was at the level of syntax. However, it is possible that other linguistic levels that were not assessed in the study may have been involved as well (e.g., failure to comprehend grammatical morphemes or lexical items).

Heilman and Scholes (1976) used a similar sentence-picture matching task with 20 sentences with direct-indirect objects (e.g., *The man showed her baby the pictures.*). Nine Broca's, eight conduction, and nine Wernicke's aphasic subjects and eight controls were examined. Sentences were presented auditorally with four pictures, two representing different direct-indirect object relationships (e.g., man showing pictures to a baby or baby pictures to a woman) and two representing different direct-indirect object items (e.g., man showing horse shoes to boys or shoes to a boy's horse). Results indicated that the Broca's subjects differed from controls in syntactic errors (i.e., they chose incorrect direct-indirect object relationships) but not lexical errors (i.e., they did not choose incorrect direct-indirect object items). These authors concluded that the comprehension impairment in the Broca's subjects was at the level of syntax. Here again, these results do not unambiguously support this conclusion, as it is possible the subjects may have failed to comprehend lexical items or grammatical morphemes and these were not tested.

Schwartz et al. (1980) also concluded that their subjects' comprehension difficulty was due to inability to decode word order. These authors' study used a picture-pointing task with five Broca's aphasic subjects to assess comprehension of (a) reversible active and passive sentences, (b) reversible locative statements, and (c) word order around transitive verbs versus prepositions. The results of the study showed that

the subjects had difficulty understanding sentences in which the underlying semantic roles were marked by the order of the NPs around a verbal element. That is, the subjects performed poorly on reversible constructions involving spatial prepositions (e.g., *The square is above the circle*) and verbs (e.g., *The dancer applauds the clown*).

Ten agrammatic Broca's aphasic subjects' reading and listening comprehension was assessed by Gallaher and Canter (1982). Six word written and spoken sentences of the form NP+V+NP were presented with a series of four pictures. The pictures represented (a) the correct response, (b) a reversal of the stimulus sentence subject and object NP, (c) a change in the number of the stimulus sentence subject, and (d) a change in one of the major lexical stimulus sentence items. The subjects were required to match written and spoken sentences to the correct picture in the series of four. The results of the study revealed similar error patterns with both the written and spoken sentences. That is, most errors were in selection of subject-object reversals rather than number or lexical item errors. The authors interpreted this result as reflecting dependence on semantic interpretation of the lexicon in the face of deficits in syntactical-grammatical interpretation.

Caplan and Futter (1986) studied a single agrammatic subject who showed striking regularities in interpreting a wide variety of sentence structures. This study assessed comprehension of thematic roles of NPs using an object manipulation paradigm. For each orally presented simple or complex sentence, the subject was to act out the meaning with toy animals. The subject achieved 100% accuracy in assigning thematic roles to NPs in the sentences that followed canonical order (e.g., active and subject-cleft) while performance was random on those that did not (e.g., passive and object-cleft). Performance on non-canonical sentences was interpreted as resulting from a partial impairment of the syntactic comprehension mechanism and the subject's use of a heuristic strategy that assigned thematic roles to NPs in a canonical linear order without regard to structural hierarchy.

Bates et al. (1987a) used an experimental paradigm similar to Caplan and Futter (1986) with 25 Broca's English, German, and Italian speaking aphasic patients and normal controls. The linguistic materials in the Bates et al. study differed in that the sentences were controlled for word order, semantic reversibility or animacy, and subject-verb agreement. Their results indicated that the Broca's aphasic subjects were constrained by language-specific facts of their respective native language. For example, word order caused the first NP to be chosen as agent more often than the second in English and German whereas in Italian no such word order effect was observed. Broca's subjects in all three languages did not differ from controls in use of animacy information but they did differ from controls in terms of number agreement.

Hildebrandt, Caplan and Evans (1987) studied an aphasic patient who presented a selective impairment in interpreting syntactic structures. This patient's pattern of errors (an inability to identify and coindex empty categories) supported a theory of syntactic structure and parsing which incorporates different types of empty categories. This study employed an object manipulation task to test the patient's comprehension of thematic roles in nine types of simple and complex (embedded) sentences containing semantically reversible nouns. This task required the subject to act out the thematic roles of the NPs in each sentence after it was read aloud. The subject made errors in assigning the antecedents of NP traces in sentences that involved linguistic movement like, *John seems to Bill to be shaving*. He was better at choosing correct antecedents of another type of empty NP that is not due to movement in sentences like, *John promised/persuaded Bill to shave*. Simple reversible passive sentences and syntactic structures that did not contain empty categories presented no difficulty for the patient. The authors concluded that subject's difficulty was due to inability to co-index empty NPs with their antecedents in more difficult sentences (the exact definition of *difficult* was not apparent). This pattern of impairment was interpreted as an inability to use one part of the parser (the device that yields the syntactic structure of a sentence when

presented with its spoken or written form) that is specifically devoted to the identification and coindexation of traces. The authors suggested that the patient's impairment was due to a processing capacity limitation and/or complexity factors determined by the syntactic structures assessed.

Another investigation examined the effect of context on sentence comprehension. Pierce and Wagner (1985) assessed the ability of fourteen aphasic listeners grouped by comprehension ability (high versus low) to use linguistic context to facilitate comprehension of two syntactic structures (reversible active and passive sentences). These two structures were tested under three conditions: (a) in isolation; (b) in a semantically neutral prior sentence context; and (c) in a semantically supporting prior-sentence context. The supportive context condition provided information that could be used to determine the subject/object relationship in a target sentence like, *The girl carries the boy* (e.g., *The boy sprains his ankle*). The neutral context condition provided little or no information that would help determine the subject/object relationship in the target sentence (e.g., *The boy and girl are playing*). The isolation condition provided no context, (i.e., the target sentence was presented alone). Appreciation of subject/object relations in the target sentence was assessed in a forced-choice paradigm and sentences were presented via live voice. After hearing each stimulus item, subjects were shown two printed words representing the nouns in the target sentence and asked to point to the word that answered the question, *who/which was verbed?* Results indicated that subjects who had the most difficulty comprehending reversible passives in isolation were able to benefit from supportive contexts while active sentences were not facilitated by context. These results were interpreted relative to possible strategies used to integrate information from different sources. For example, using a canonical approach which linearly assigns a subject-verb-object relationship to the NP+V+NP surface structure of reversible passive sentences would result in comprehension errors in the isolation condition. Likewise, plausibility factors

would not exist for these sentences in isolation, thus also leading to errors in comprehension. Pierce and Wagner purported that the results reinforce the idea that the comprehension deficit lies in difficulty understanding deep-structure relationships and recognizing underlying relationships reflected in surface-structure markers as presented in Chomsky's GB theory. That is, context would not be expected to assist in the understanding of active sentences that represent the deep-structure relationships if the source of the comprehension difficulty is in the understanding of these relationships. On the other hand, context would be expected to assist in the recognition of the underlying relationship represented in the surface structure of passive sentences.

Friederici and Graetz (1987) examined eight nonfluent (Broca's) and eight fluent (seven Wernicke's and one anomic) aphasic subjects' ability to process semantically reversible passive sentences without semantic cues in a sentence-picture matching task. Dutch was the native language of all subjects. In the matching task, sentences were presented visually and subjects were asked to read them aloud before selecting the matching picture from a field of three choices. The choices included the correct picture, a syntactic distractor (reversed agent/patient), and a lexical distractor (either agent/patient or action did not correspond to the target sentence). The passive sentences used varied with respect to the order of the syntactic subject and object nouns. That is, half were agent first (e.g., *By the girl is-being the boy kissed*) and half were patient first (e.g., *The boy is-being by the girl kissed).* The sentences also varied in degree of syntactic complexity with 20 items to represent (a) simple passives (e.g., *The boy is being kissed by the girl*), (b) a question plus an implicitly directive passive construction (e.g., *In which picture is the boy being kissed by the girl?*), and (c) an explicit imperative passive with a relative clause (e.g., *Show me where the boy is being kissed by the girl*). Results of the study indicated that different strategies were used by the two subject groups. Fluent patients assigned syntactic function according to sequential arrangement of words (i.e., they assigned the first noun as agent regardless

of word order or syntactic complexity). Nonfluent patients based their interpretation on specific structural elements of a sentence's surface form and their performance was essentially equal for all constructions regardless of word order or syntactic complexity even though they were unable to exploit the full syntactic information of these elements as indicated by less than perfect performance. This finding was interpreted as support for the view that the comprehension limitations in these two subject groups are due to different underlying deficits. That is, Wernicke's comprehension difficulties seem to arise at a level where integration of semantic and syntactic information takes place whereas Broca's aphasic patients' processing may be due to limitations in accessing the full structural information of closed class elements. These data conflict with Caplan's (1983) proposal that English speaking agrammatic aphasics rely on different cues for interpretation such as animacy, word order, and local structural cues.

Friederici and Frazier's later study (1992) with similar aphasic subject groups examined thematic role assignment during sentence comprehension using the same sentence-picture matching paradigm. Two out of three experiments conducted again yielded different results for the subject groups. For example, when task demands were raised by delaying presentation of the relevant picture set, a significant decrement in performance was observed for the agrammatic Broca's group but not for the Wernicke's group. When task demands were raised by putting the main verb in the sentence-final position, the Wernicke's group performance was adversely affected but the Broca's group performance was not. The results were interpreted as evidence that the Broca's aphasic subjects' performance was due to processing demands imposed by structural inference chains. In another study (Frazier & Friederici, 1991), it was suggested that agrammatic comprehension is a computational deficit wherein task demands and the severity of the aphasic deficit will result in degraded performance. Performance deficits would not be evenly observed across all sentence structures; they

would be most apparent in recovery of structures that involved the longest inferential chains.

Caplan et al. (1985) also found that syntactic structure does influence assignment of thematic roles in aphasia. These authors tested nine sentence types in three separate studies with English and French speaking aphasic patients. Comprehension of active, passive, cleft-subject, cleft-object, conjoined, subject-object relative, and object-subject relative sentences containing one or two verbs were examined. These sentence types represent four features of syntactic structure -- linear order of categories, hierarchical organization of categories, verb subcategorization, and the role of function words and morphological elements. The object manipulation task used required subjects to manipulate toy animals to demonstrate thematic roles of nouns in verbally presented sentences. Results indicated that noncanonical passive and object-relative clause sentences were more difficult than canonical active and subject-relative clause sentences. Sentences containing two verbs were more difficult than those containing one regardless of whether they were in canonical form or not. Thus, Caplan et al. concluded that the aspects that contribute additively to sentence complexity (e.g., noncanonical word order and more verbs per sentence) all made sentence comprehension more difficult. The authors further suggested that the effects of function word/morphological vocabulary on sentence complexity are related to the structural features of a sentence associated with that vocabulary (e.g., passive morphology and the *by*-phrase).

Sherman and Schweickert (1989) found that both semantic and syntactic information contributed to sentence comprehension. A sentence-picture matching task in which syntactic complexity, semantic reversibility, and sentence plausibility were varied in two sets of sentences was used to test five agrammatic aphasic subjects and eight normal controls. The syntactic complexity set included 80 reversible and nonreversible active, passive, and center-embedded object-relative clause sentences.

Each sentence was presented with two pictures, one that matched the meaning and a distractor that varied lexical (noun/verb) or syntactic properties (role reversal, adjective dependency). The grammatical category set included 12 homophonic homographs dependent on the preceding function word (e.g., *The girl likes to/the play.*). Again, this set was presented with two pictures, one indicating correct meaning and one depicting the target word in the wrong grammatical category. Results demonstrated that the aphasic subjects tended to have different levels of difficulty with different types of sentences (e.g., better performance on active and passive that center-embedded relatives.) They performed better when semantic information facilitated comprehension (as reflected by more accurate interpretation of nonreversible than reversible sentences) and they tended to make more syntactic than lexical errors (consistent with Heilman & Scholes, 1976). The subjects could perform some sentence level syntactic analyses, even when syntactic information conflicted with semantic constraints. They were not intact at the lexical and morphological levels but were, in general, sensitive to information from function words.

Vaid and Pandit (1991) studied sentence interpretation with two Hindi-English bilinguals with Broca's aphasia. Three cues to agenthood (word order, noun animacy, and subject-verb agreement) were tested in both languages. Animacy plays a dominant grammatical role in Hindi as does word order in English. The results of this study indicated these strategies fell within the range observed among bilingual normals. That is, there was a greater use of animacy in Hindi than in English and a greater use of word order in English than in Hindi. The authors concluded that these results reflect preservation of normal, language-specific processing strategies, thus they can not be interpreted as nonlinguistic strategies developed to compensate for receptive agrammatism.

McCarthy and Warrington (1985) established a category-specific word retrieval deficit that conformed to a syntactic rather than a morphological subtype of

agrammatism. These authors described and quantified the sentence comprehension, word retrieval, and word comprehension of a severely agrammatic patient using picture/sentence and word/sentence matching tasks. The deficit observed in this subject involved degradation of verb meanings and particular difficulty with comprehension of passive sentences and sentences containing spatial prepositions that were considered to be *verb-like* (e.g., *The circle is under the square*). This finding was consistent with Schwartz et als.' 1980 study which also claimed to find word order difficulties in their Broca's subjects.

In summary, the studies investigating sentence comprehension with off-line sentence-picture matching or verification tasks or object manipulation paradigms seem to agree that aphasic subjects depend to varying degrees on semantic cueing, pragmatic information, real world knowledge and/or heuristic strategies for sentence interpretation. It also seems clear that as syntactic complexity increases, processing ability decreases. In particular, sentences in which linguistic movement has occurred and resulted in noncanonical word order (e.g., passive and object-cleft sentences) appear to be most problematic. But as noted previously, there are other factors that may have influenced performance on these off-line comprehension tasks, in particular the influence of memory.

Studies of the Influence of Memory on Sentence Comprehension

A number of studies have focused on aspects of memory that may be involved in sentence processing. For example, Caramazza, Zurif, and Gardner (1978) suggested that aphasic patients' memory span for sentence material may be severely limited. These authors utilized a probe paradigm to assess memory for surface structure of three sentence types (active, passive and center-embedded) in Broca's and Wernicke's aphasic subjects. Stimulus sentences were presented orally and subjects were subsequently presented with one word from the sentence and asked to recall the word that followed it. Results of this memory testing indicated that both groups were better

able to recover content versus function words and that center-embedded sentences were more difficult to process than the other two sentence types. Neither group was able to use syntactic information in sentence processing or in construction of memory representations. Caramazza et al. interpreted these results as indicating that aphasic patients do not have normal surface structure memory representations. That is, storage capacity for verbal material is limited.

Saffran's and colleagues small set of mostly single case studies yielded a basic finding of an association between sentence comprehension and memory span limitations in patients with short-term memory (STM) deficits (Saffran & Marin, 1975; Saffran & Martin, 1991; Schwartz, Linebarger, Saffran, & Pate, 1987). Saffran (1990) asserted that there is an association between sentence comprehension deficits and span limitations but that the veridical preservation of the input string is not essential for recovery of syntactic structure per se. Instead, deficits may lie in failure to make adequate use of syntactic information in constructing a semantic interpretation of the input string. For example, semantic representations may be developed quickly and prematurely on the basis of lexical, pragmatic, and local structural information because of the risk of losing semantically unencoded information. Saffron and colleagues claimed that the evidence for a relationship between memory deficits and syntactic aspects of sentence processing lies in the information requirements of the parsing process and data from grammaticality judgment tasks (Berndt, Salasoo, Mitchell, & Blumstein, 1986; Linebarger, Schwartz, & Saffran, 1983; Lukatela, Crain, & Shankweiler, 1988).

Linebarger et al. (1983) studied four Broca's aphasic subjects who were agrammatic in both production and comprehension. These subjects made grammaticality judgments (decisions about well-formedness of auditorally presented sentences) on systematically ungrammatical sentence structures representing ten classes of rule violations. Performance on this task indicated that the subjects were able to

perform complex syntactic analysis of sentences even when they were unable to comprehend syntactically complex sentences. Because Linebarger et als.' subjects purportedly had restricted immediate memory spans, the authors explained the dissociation between comprehension and grammaticality judgment on the basis of memory demands. That is, grammaticality judgment requires analysis only while comprehension requires analysis and interpretation. The subjects were able to accomplish the shallow processing (analysis) that is adequate for correctly judging well-formedness of most syntactic structures but they were unable to analyze and interpret syntactically complex sentences due to memory limitations.

Berndt et al. (1988) investigated the possibility that agrammatic aphasic patients' ability to perform auditory grammaticality judgments results from their use of intonation cues. Comprehension of semantically reversible active and passive sentences was assessed in a sentence/picture matching task with two agrammatic, two anomic, and two nonagrammatic aphasic subjects. Results indicated that the agrammatic subjects and one of the nonagrammatic subjects had difficulty comprehending these aurally presented sentences that required interpretation of syntactic information. The same subjects subsequently were required to judge sentence well-formedness in two conditions--natural speech (i.e., normal rate and intonation) and monotone speech (i.e., constant fundamental frequency). Results in the natural condition replicated Linebarger et al. (1983). Likewise, all subjects performed well in the monotone condition, thus the authors concluded that intonational cues do not contribute significantly to aphasic patients' ability to detect syntactic violations when performing the grammaticality judgment task. Berndt et al. interpreted their results as supporting Linebarger et als.' assertion that asyntactic comprehension does not result from inability to perform syntactic analysis.

Lukatela et al. (1988) investigated sensitivity to two kinds of syntactic features in six Serbo-Croatian-speaking agrammatic patients with significantly impaired

comprehension. The authors tested inflectional morphology of subcategorization rules for transitive verbs (which must be followed by an accusative case noun) and marking of noun case. Test items consisted of three-word sentences (noun+verb+noun) in which verb transitivity and appropriateness of the case inflection of the following noun were manipulated. Subjects were asked to judge the grammaticality of spoken sentences. Results indicated that both syntactic properties (subcategorization and case marking) were preserved in these patients, thus the authors concluded the patients were capable of using bound closed-class morphemes in on-line sentence processing. Lukatela et al. suggested that the subjects' knowledge of syntax was intact in circumstances that do not tax memory (i.e., grammaticality judgment), but that linguistic knowledge is less accessible in contexts that place heavier demand on memory (i.e., sentence comprehension).

Martin and colleagues' studies (Martin, 1987; Martin & Feher, 1990; Martin, Wetzel, Blossom-Stach & Feher, 1989) also appear to implicate memory processes, however, not in the same way. Martin's 1987 study with (a) nonfluent agrammatic patients with poor comprehension of syntax, and (b) nonfluent patients who were not agrammatic and had good comprehension indicated that there was a difference in comprehension of syntax between these two groups. The difference was attributed to a disrupted WM system that is presumed to be involved in sentence comprehension, rather than reduced memory span. Subjects in both groups showed patterns consistent with a classification of Broca's aphasia. The spontaneous speech of the nonfluent agrammatic subjects consisted mainly of nouns and some verbs while the other nonfluent subjects' spontaneous speech showed some degree of syntactic structure that was not limited to stereotyped constructions that are characteristic of subjects classified as agrammatic. This study employed a picture-pointing memory task in which the subjects were asked to point to items that had been named in the order in which they were presented. Memory sets varying in size from two to six items and eight different

word lists consisting of ten concrete nouns were developed. Results of the memory task revealed no striking differences in the memory patterns of the agrammatic group and the other nonfluent group, i.e., the agrammatic patients performed at about the same level as the other nonfluent group. Subsequent to the memory task, both groups were tested on comprehension of reversible active and passive sentences in a picture-pointing task. Results of this task indicated little relationship between memory span (as calculated by the memory task) and comprehension. That is, the nonfluent patients who were not agrammatic performed poorly on the memory task yet their comprehension was better than the agrammatic patients who had essentially equal memory spans. Thus, the impairment of syntax in the agrammatic group was presumed to be responsible for their poorer comprehension performance.

In a follow-up study with aphasic patients with restricted memory spans (Martin & Feher, 1990), comprehension was assessed under two conditions -- (a) syntactically simple sentences varying in number of content words, and (b) sentences matched in number of content words but varying in syntactic complexity. Three presentation modes were used: limited visual presentation, unlimited visual presentation, and auditory presentation. In the limited visual presentation mode sentences appeared one word at a time across a screen and a response was executed after the last word disappeared. In the unlimited visual presentation mode sentences were accessible and available for review during execution of a response. In the auditory presentation mode sentences were spoken by the examiner and no visual stimulus was present. In the first condition (varied number of content words), performance was worse for limited than for unlimited visual presentation, indicating that differences were related to memory span. In the second condition (varied syntactic complexity), no clear reduction in performance was observed between limited and unlimited visual presentation. Thus, again, the conclusion was drawn that processing of sentences with a varied number of

content words is influenced by memory span limitations, but processing of varied syntactic complexity is not.

Martin et al. (1989) evaluated the explanations of syntactic comprehension deficits offered by Grodzinsky (1984/1986) and Kolk and van Grunsven (1985). Grodzinsky hypothesized the deficit as loss of syntactic ability while Kolk and van Grunsven attributed the deficit to WM impairment. Grodzinsky's and Kolk and van Grunsven's theories are further elaborated in a later section of this chapter. Martin et al. compared the comprehension performance of four agrammatic aphasic patients on auditory sentence-picture matching tasks using three sets of sentence materials containing short and long active sentences and full (e.g., *The boy was pushed by the girl*) and truncated (*Turkeys were eaten*) passive sentences. Grodzinsky's S-structure deficit hypothesis would predict above chance performance on active sentences, chance performance on full passives, and below chance performance on truncated passives. Kolk and van Grunsven's WM deficit hypothesis would predict better performance on truncated than full passives and shorter than longer sentences. Neither hypothesis was supported, as the patients performed at a similar level on both types of passives.

In summary, studies of sentence comprehension in aphasia indicate that (a) language comprehension in aphasia is not a unitary factor and (b) agrammatic aphasic subjects demonstrate impaired comprehension. Some studies suggested that agrammatic aphasic subjects are impaired only at the level of syntax (Bates et al., 1987a; Caplan et al., 1985; Caplan & Futter, 1986; Caramazza & Berndt, 1985; Caramazza & Zurif, 1976; Gallaher & Canter, 1982; Grodzinsky, 1984; Heilman & Scholes, 1976; Hildebrandt et al., 1987; Lesser, 1974; McCarthy & Warrington, 1985; Naeser et al., 1987; Parisi & Pizzamiglio, 1970; Schwartz et al., 1980; Shewan & Canter, 1971; Vaid & Pandit, 1991). Others suggest that other linguistic levels as well as memory and processing demands may be involved (Bradley et al., 1980; Frazier & Friederici, 1991; Friederici, 1985; Friederici & Frazier, 1992; Friederici & Graetz,

1987; Goodglass et al., 1970; Kean, 1977; Lapointe, 1983; Martin, 1987; Martin & Feher, 1990; Martin et al., 1989; Pierce & Wagner, 1985; Prather et al., 1992; Saffran & Marin, 1975; Saffran & Martin, 1991; Schwartz et al., 1987; Sherman & Schweickert, 1989; Swinney et al., 1980; Zurif et al., 1990; Zurif et al., 1993). In any case, it appears that thematic role assignment plays a crucial role in sentence comprehension.

In order to examine the processing characteristics of language disordered subjects, it is necessary to use tasks which directly reflect those processes. Data from off-line tasks appear invaluable for answering questions about the nature of the representations constructed by a listener. They may not, however, be appropriate for examining the processes involved in constructing that representation. Therefore, what is needed in order to fully assess asyntactic comprehension is experimental data that contrasts on-line performance with off-line performance on the same or similar sets of experimental stimuli. Tyler's (1985) experiment appears to be the only study that has used on-line and off-line tasks with one agrammatic subject. The results of that study seem to be most compatible with Grodzinsky's trace deletion hypothesis which will be more fully discussed in a later section of this chapter.

Sentence Production in Aphasia

The patterns of sentence production breakdown in agrammatism are as varied as those observed in comprehension. Contemporary studies in this area, like the earlier studies previously discussed, range from investigations of differences between lexical items (e.g., open versus closed class vocabulary) and morphological characteristics (e.g., bound versus free grammatical morphemes) to investigations of differences among sentence types. The studies that investigated lexical and morphological variables will be discussed first, followed by a discussion of those that investigated the characteristics of sentence structure.

Lexical and morphological variables

Several studies have investigated production of nouns and verbs in agrammatic speakers (Gleason et al., 1980; McCarthy & Warrington, 1985; Miceli, Mazzucchi, Menn & Goodglass, 1983; Myerson & Goodglass, 1972; Saffran, Berndt, & Schwartz, 1989; Zingeser & Berndt, 1990). As previously discussed (refer to Table 1), the studies of Myerson and Goodglass (1972) and Gleason et al. (1980) found a greater proportion of nouns than verbs in agrammatic speech samples. In addition they documented that mostly concrete nouns and unmarked verbs were used. Later studies supported this finding (Miceli et al., 1983; Zingeser & Berndt, 1990).

Miceli et al. (1983) contrasted two Italian-speaking aphasic patients' production performance on various tasks. Production tasks consisted of naming tasks, interviews, and narrative language samples. Both patients presented agrammatic speech but one patient's speech output was fluent with normal sentence length and complexity while the other patient's speech was nonfluent. The fluent patient tended to omit function words and finite verb inflections to a greater degree than the nonfluent patient. However, the nonfluent patient omitted main verbs in discourse to a greater degree than the fluent patient. In addition, the nonfluent patient's noun retrieval was better than verb retrieval on naming tasks. On the basis of the contrasting production performance, the authors concluded that the fluent patient was more morphologically but less syntactically impaired than the nonfluent patient.

Zingeser and Berndt (1990) investigated the ability to produce nouns and verbs in various production tasks with two groups of patients -- five agrammatic aphasic patients and five anomic aphasic patients. Production tasks included picture naming, naming-to-definition, action description, and story elicitation (narrative speech). These authors found that the agrammatic group produced significantly fewer verbs than nouns in all tasks. This finding supported Miceli et als.' study (1983) which found verb retrieval to be poorer than noun retrieval during naming tasks.

McCarthy and Warrington (1985) found that their agrammatic patient's striking feature was his abnormal verb phrase constructions. This patient was impaired in retrieval and comprehension of action names and verbs contrasted with excellent comprehension and retrieval of nouns. These authors argued that the patient's semantic representation of verbs was impaired and that this lexical deficit was at the core of this type of agrammatism.

Several studies have focused on the frequency of production of open (i.e., content words) versus closed class (i.e., function words) vocabulary and other morphological characteristics of agrammatic speech production (Caramazza & Hillis, 1989; deVilliers, 1974; Frazier & Frederici, 1991; Friederici, 1982; Friederici & Schoenle, 1980; Goodglass & Berko, 1960; Goodglass & Hunt, 1958; Miceli & Caramazza, 1988; Nespoulous, Dordain, Perron, Ska, Bub, Caplan, Mehler & Lecours, 1988; Saffran et al., 1989; Wales & Kinsella, 1981). These studies employed oral reading, sentence and story completion, picture description, writing, repetition, and/or narrative discourse tasks to analyze agrammatic Broca's aphasic subjects use of content and function words and grammatical morphemes.

The results of all of the studies that focused on open versus closed class vocabulary reflected omission of closed class vocabulary in the presence of relatively spared open class vocabulary. For example, Nespoulous et al. (1988) described a French-speaking Broca's aphasic patient who produced agrammatic speech in the absence of any comprehension deficit. Sentence production tasks employed to assess this patient included spontaneous speech, repetition, oral reading and writing. Production of individual words (both open and closed class) was found to be almost always intact but closed class vocabulary was impaired in phrases and sentences. On the basis of the extensive psycholinguistic testing administered to this patient, the authors argued that the patient's deficit was not a central one and not crucially syntactic at the level of knowledge. Nespoulous et al. interpreted the deficit as a disruption of

specific processes responsible for retrieval and production of free-standing grammatical morphemes whenever they needed to be inserted into phrases and sentences.

Caramazza and Hillis (1989) also studied a patient with selective disruption of sentence production characterized by omission (and occasional substitution) of free-standing and bound grammatical morphemes. Both unconstrained (story telling, picture description, structured sentence formulation, conversation, written naming) and constrained (oral reading, repetition, writing to dictation) production tasks were employed. Comprehension was assessed with an auditory and written sentence-picture verification task that utilized active, passive, and complex relative clause reversible and nonreversible sentence constructions. The subject's comprehension performance was judged to be within normal limits while sentence production was severely impaired. Sentence production was characterized by reduced phrase length, omission of free-standing and bound grammatical morphemes, and word substitution and word-order errors. This patient, like Nespoulous et als.' (1988) patient, had no difficulty with comprehension or production of single words including functors. The patient's performance was interpreted as reflecting a functional lesion to the positional level of sentence production as per Garrett's model of sentence production.

Frazier and Frederici (1991) proposed that their characterization of agrammatic comprehension as a computational deficit could be extended to production as well. If closed class elements are impoverished in terms of the number of means that can be used to access, order and pronounce them, they would be particularly vulnerable in the production process due to the computational steps necessary to generate a sentence.

Several studies discussed in an earlier section of this chapter found a hierarchy of difficulty of grammatical morphemes (deVilliers, 1974; Goodglass & Berko, 1960; Goodglass & Hunt, 1958). Miceli and Caramazza (1988) investigated the types of errors made in repetition and spontaneous speech tasks by a single Italian-speaking aphasic subject. Analysis of errors indicated that this subject substituted and omitted

free standing morphemes and used bound morphemes incorrectly. Bound morpheme errors occurred more frequently for inflections (e.g., *dog* for *dogs*) than for derivations (e.g., *washing* for *washer*). Inflectional errors consisted mostly of errors in the plural form of nouns and adjectives, the feminine form of adjectives, and verb endings.

Syntactic Variables

Agrammatic aphasic subjects use of syntactic structures has been examined in several studies (Bates et al., 1988; Caramazza & Hillis, 1989; Gleason et al., 1975/1980; Goodglass, 1968; Miceli, Silveri, Romani, & Caramazza, 1989; Saffran, Berndt, & Schwartz, 1989; Saffran et al., 1980). Various structures have been analyzed utilizing picture description, narrative discourse, spontaneous speech, story completion, oral reading, writing, repetition, and object manipulation tasks. Five of the early studies that were discussed in a previous section of this chapter documented a hierarchy of difficulty of sentence types as well as difficulty with word order (Gleason et al., 1975; Gleason et al., 1980; Goodglass, 1968; Goodglass et al., 1972; Saffron et al., 1980).

Consistent with Gleason et al. (1980), Saffran et al. (1989) found no embedded structures in the narrative speech of five agrammatic Broca's aphasic subjects. These subjects were classified as agrammatic based on the investigators' clinical judgments concerning their tendency to omit bound and free-standing grammatical morphemes more frequently than nonfluent, nonagrammatic Broca's aphasic subjects. These authors elicited narrative language samples using a story telling task. Language samples obtained were subsequently transcribed and analyzed for lexical and morphological content and structural complexity. Saffran et als.' quantificational analysis reflected a reduced number of well-formed sentences in the agrammatic subjects' speech.

Saffran et als.' finding of a reduction in sentence grammaticality was supported by Miceli et al. (1989) in their study of the narrative speech of 20 agrammatic subjects.

These authors collected narrative samples by asking the subjects to describe their illness history, activities of daily life, and a pictured scene as well as utilizing a story elicitation task. The narrative samples were analyzed qualitatively in terms of the error patterns on freestanding and bound grammatical morphemes. Errors patterns were found to differ in that some of the subjects' agreement errors were between determiners and nouns, nouns and adjectives, and nouns and verbs while other subjects' agreement errors were between only nouns and adjectives.

Two studies noted difficulty with word order (Saffran et al., 1980 & Caramazza & Hillis, 1989). As previously discussed, Saffran et al. found that their agrammatic subjects had difficulty ordering NPs around verbs or prepositions. Caramazza and Hillis' single agrammatic subject also produced word order errors in spontaneous speech, repetition, oral reading, and writing of sentences. This subject's production of words out of grammatical order (e.g., *Ducks ... flat bill have. Who is ... girl ... nose ... big?*) occurred in both verbal and written production tasks. However, the results of these two studies are not consistent with Bates et al. (1988).

Bates et als.' (1988) cross-linguistic study examined word order in three languages with 23 Broca's aphasic subjects using a constrained production paradigm. Nine cartoon picture triplets representing four word order types were presented for verbal description by the subjects. The word order types included: (a) agent+verb (e.g., *A bear is crying*); (b) agent+verb+object (e.g., *A monkey is eating a banana*); (c) agent+verb+location (e.g., *A dog is in a car*); and (d) agent+verb+object +dative (e.g., *A lady is giving a present to a girl*). Subsequent analysis of word order and syntactic complexity was restricted to the 'core description' (i.e., false starts, repetitions, circumlocutions, and extraneous comments were eliminated from the transcripts). Only the absolute number of main and subordinate clauses produced were analyzed. These authors' results do not agree with the claim of word order difficulty proposed by Saffran et al. and Caramazza and Hillis. That is, Bates et al. found that

their subjects were able to produce canonical sentence order and to order nouns around prepositions in all three languages. However, reductions in phrase structure complexity occurred in all three languages. Bates et al. concluded that the problem evidenced by their subjects was one of decreased syntactic complexity and over-reliance on canonical sentence order rather than one of word ordering.

In summary, agrammatism is considered to be a symptom pattern associated with Broca's aphasia reflecting deficits in morphology, the lexicon, and sentence structure. A primary characteristic appears to be omission of bound and free-standing grammatical morphemes. A hierarchy of difficulty for morphemes, lexical items and sentence structures is evident. Additionally, sentence constructions appear to be structurally simple while complex sentences (e.g., passive or object-cleft) are rarely produced.

Relation Between Sentence Comprehension and Production

The concept of agrammatic productive deficits accompanied by parallel deficits in comprehension was discussed by Bonhoeffer as early as 1902 (in Kean, 1985) and was considered a matter of fact in the beginning of this century. This concept fell into oblivion only to be resurrected 50 years later by Zurif, Caramazza, and Myerson in 1972. Zurif et als.' study with three agrammatic aphasic and four non-neurological subjects (normal controls) tested the *preserved language competence* claim that agrammatic aphasic subjects have normal tacit knowledge about syntactic structure that is not indicated in their speech. These authors' experimental paradigm required subjects to sort words from a variety of sentences chosen from Goodglass et als.' (1972) story completion task on the basis of how closely related the words in the sentence were. The written sentences were always in view while three-word combinations were presented, one at a time, and the subjects were asked to choose by pointing to the two words that went best together. The results or this word-sorting task indicated that relatedness judgments of the normal control subjects were constrained by

the surface syntactic properties of the sentences, resulting in organized subject and object NPs and a respect for subject-predicate distinctions. In contrast, the aphasic subjects tended to couple content words together, thus violating the linguistic unity of both noun and verb phrases. Zurif et al. interpreted these results as reflecting a disruption of the underlying language mechanism in the agrammatic subjects. The results of similar studies reported in Zurif, Green, Caramazza, and Goodenough (1976) lent further evidence that agrammatism reflects a language limitation rather than a performance limitation. These authors suggested that agrammatic Broca's aphasic patients' grammatical knowledge is limited in the same manner as their production.

Numerous later studies have reported on patients who presented with agrammatic production as well as asyntactic comprehension (Caplan et al., 1985; Caramazza & Berndt, 1985; Linebarger et al., 1983; Saffran et al., 1980; Schwartz et al., 1980; Schwartz et al., 1985; Schwartz et al., 1987). These studies were carried out from the point of view that a central representation of syntactic structure might govern production and comprehension and seemed to propose that some processing component is shared by the disrupted production and comprehension processes. However, exceptions have been reported since the beginning. Patients have been described who evince agrammatic production patterns but demonstrate normal comprehension (Badecker & Caramazza, 1985; Caramazza & Hillis, 1989; Kolk and van Grunsven, 1985; Miceli et al., 1983; Nespoulous et al., 1988). For example, the Nespoulous et als.' and Caramazza and Hillis' single case studies of French and English-speaking aphasic subjects discussed previously described patients with selective disruptions of sentence production in the absence of comprehension deficit. These studies suggested that comprehension and production symptoms do not arise from a single functional impairment.

In addition, in studies that have compared grammatically fluent aphasic subjects (e.g., Wernicke's) with agrammatic subjects (e.g., Broca's), the presence of

agrammatism in speech did not appear to play a role in the nature of syntactic comprehension problems (Heeschen, 1980; Caplan et al., 1985). For example, Caplan et als.' investigation of the syntactic determinants of sentence comprehension in aphasia identified patient subgroups by overall severity and success with particular sentence types that did not correspond to traditional aphasic categories. Heeschen (1980) also investigated 22 Broca's aphasic and 22 Wernicke's aphasic German-speaking subjects using a sentence-picture matching task to test their ability to understand actor-object relations within reversible and irreversible sentences. The stimulus sentences were presented in normal actor-action-object order or topicalized object-action-actor form. Results indicated that both groups made more errors in topicalized than normal sentences; however, there were no significant group differences in this respect. Heeschen interpreted this finding as disputing the hypothesis of selective and specific impairment of syntax in language comprehension in Broca's aphasia.

Is it possible that comprehension underlies production? The question of whether comprehension is a prerequisite to production (i.e., comprehension of linguistic form always takes precedence over production) has yet to be answered.

The traditional view of how children learn language purports that they learn by observing language use in social interaction, thus at any time during their development they are able to comprehend more than they can produce (Bates, 1976; Bates & MacWhinney, 1982; Brown, 1979; Gleitman & Wanner, 1982; Ingram, 1974; Whitehurst, 1982; Winitz, 1973). This view has been contradicted by results of studies that have assessed children's comprehension of semantic roles in sentences (Bridges, 1980; Chapman & Kohn, 1978; Chapman & Miller, 1975; deVilliers & deVilliers, 1973; Strohner & Nelson, 1974). These studies have found that until after age five, children are able to express semantic roles better than they are able to understand these roles when expressed by others.

Chapman and Miller (1975) found that grammatical production preceded comprehension of subject-object order in semantically reversible sentences with animate and inanimate subjects and objects. These authors concluded that comprehension and production are mutually dependent but that they have different underlying processes. According to Chapman and Kohn (1978), children may comprehend sentences through superficial linguistic characteristics (e.g., strategies such as probability, animacy, word order, semantics, context). These authors propose that it is possible that these strategies may be the only means by which children comprehend sentences at the early stages of linguistic development. In other words, children's early grammar may be semantic, not syntactic and content and meaning may precede language form.

Piaget (1950) suggested that the irreversible aspect of thought characterizes the general intellectual functioning of children who are at a pre-operational stage of cognitive development. According to Piaget, failure to use word order cues in comprehension when word order is observed in production is an instance of failure to reverse processes that can be carried out in one direction, not comprehension failure as proposed by Chapman and Miller. Piaget maintained that comprehension and production would not share the same linguistic competence until a child had attained the concrete operational stage of cognitive development. It is at this stage that the potential reversibility of the processes in each language modality should make a common basis of linguistic knowledge available in both receptive and expressive language modalities.

Menyuk (1977) is of the opinion that comprehension mirrors but exceeds production. This author suggested that the experimental situations that have attempted to answer the question relative to whether comprehension precedes production are problematic. In these situations, children are forced to analyze the language as an object in itself, i.e., to employ metalinguistic abilities. This ability does not always increase in all children and it does not appear to be present in all adults. If and when this ability increases during middle and later childhood, the experimental situation per

se may create at least partially inaccurate assumptions from results obtained. That is, children may be able to create and understand messages in conversational contexts that they are unable to demonstrate in metalinguistic tasks.

Schuell and her colleagues (Schuell, Jenkins, & Jimenez-Pabon, 1964) conceived of the language system as dependent upon auditory control for processing information directly and for mediating and regulating language through feedback loops. Her belief in the eminence of the auditory system led to treatment principles that were steeped in auditory emphasis. Darley (1982) elaborated on her principle of *auditory bombardment* and emphasized demonstration of comprehension before exercising verbal expression at any level. Eisenson (1984) stated that the first principle of training for a patient with auditory disturbances was to teach them to listen in order for them to learn to understand what they hear. All of these authors seem to imply that if comprehension is treated and improved, a beneficial effect on other language modalities, including production, will occur.

However, this implication has not been adequately borne out by research (Marshall & Neuburger, 1984; Rosenbeck, 1979). These authors' suggested that strong reliance on auditory comprehension training may have generated unmet expectations. One study has suggested that comprehension and production may become dissociated, thus calling into question the efficacy of expecting comprehension training to exert an indirect effect on other language modalities (Prins, Snow & Wagenaar, 1978). Prins et al. (1978) studied 74 Dutch-speaking aphasic patients of various types (fluent, mixed, nonfluent, and severely nonfluent) whose aphasia was at least three months post-onset. These patients were tested three times over the course of one year to assess recovery of spontaneous speech and sentence comprehension. Spontaneous speech samples were elicited by presenting a conversational topic and audio recording two minutes of discussion. These samples were subsequently transcribed and scored on 28 variables chosen on the basis of psycholinguistic relevance (e.g., MLU, complex

utterances, syntactic mixtures, content-word/function-word ratio, word-order mistakes, etc.). Sentence comprehension was tested with an auditory sentence-picture matching task similar to Parisi and Pizzamiglio's 1970 test. The results of this testing indicated that all subjects' sentence comprehension was significantly improved while no overall clinical improvement was observed in spontaneous speech.

Martin et al's. (1989) study of aphasic patients with different patterns of morphological and structural sentence production impairment found little relation between production indices and comprehension level. Production data were collected on four subjects via story telling and picture description tasks. These oral language samples were scored using Saffran et als.' (1986) criteria and were subsequently compared with comprehension performance on full and truncated passive sentences in an auditory sentence-picture matching task. The purpose of this comparison was to determine if distinctive comprehension patterns were shown by subjects who had morphological and structural problems versus those who showed mainly structural problems. One subject who showed the most impaired production in terms of morphological and structural indices did not show the worst comprehension of the four subjects. The other three subjects showed similar patterns on the production indices, but quite different levels of performance on the comprehension tests. Thus, there was no clear relationship between degree of impairment in production and degree of impairment in comprehension. Martin et al. interpreted their results as arguing against any global theory of agrammatism that attempts to attribute all agrammatic speech and co-occurring syntactic comprehension deficits to the same source. This interpretation stands in contrast to McCarthy and Warrington (1985) who attributed their agrammatic patient's abnormal sentence constructions to his impairment of verb comprehension and retrieval.

Perhaps one of the reasons for conflicting views regarding the relation between sentence production and comprehension lies in the production and comprehension tasks

themselves. One of the most common and direct ways of testing comprehension of word order is to present a pair of pictures that are semantic role reversals of one another and require that a sentence be matched to one of the pictures. The task then becomes one of deriving a semantic role representation for each picture and matching one of these representations to the semantic role representation of the stimulus sentence. Thus, there are three semantic role representations to deal with simultaneously--two derived from the pictures and a third derived from the stimulus sentence. The process now involves evoking two sentences (i.e., one to describe each of the pictures) and subsequently storing the sentences evoked in memory. Upon hearing a sentence spoken, the subject has to match the stimulus sentence to one of the two sentences retrieved from memory. Given that the two sentences were stored in the right form in the first place, the matching might be fairly straightforward, but if they were stored without regard to order or role and did not include all three sentence elements (agent, action, object), then the matching may be more complex. Regardless if this is the actual process involved, however the comprehension task is analyzed it is a more demanding one than a production task in which a semantic role relationship is depicted in one picture. If subjects are not able to perform the mental operations required by the test format, they may revert to guessing because the difficulty of the format may make it impossible to use linguistic cues.

The functional relation between comprehension and production in aphasia has not been studied. The recovery of these modalities over time could be investigated to ascertain whether they are affected in a similar manner. It seems reasonable that agrammatism may affect production and comprehension of sentences in different ways. For example, word order errors may not be characteristic of agrammatic production although they do seem to be characteristic of asyntactic comprehension. Thus, syntactic errors of comprehension and agrammatic speech errors may result from a

general grammatical processing deficit that is realized in unique ways in the receptive versus the expressive modalities.

Theories of Agrammatism

The study of language processing is concerned with how people go about using linguistic knowledge to produce and understand words and sentences. A number of theories evolving from both linguistic and psycholinguistic research have been posed to explain agrammatism. In general, linguists are interested in the unconscious knowledge base that underlies a native language. Psycholinguists, on the other hand, are interested in how this knowledge base is used. While reviewing this literature, it became evident that there is little consensus of opinion as to the nature of agrammatism. The theories reviewed are presented within four general areas of investigation -- linguistic, psycholinguistic, memory, and central syntactic language.

Linguistic theories

Formal research on the linguistic nature of agrammatism began around the early 1960's. Jakobson (1956) was the first linguist to attempt a theoretical interpretation of agrammatism. This author characterized the behavior as being due to a *contiguity disorder*, i.e., a loss of syntagmatic (grammatizing) ability with preserved paradigmatic (concept-naming) ability. Jakobson maintained that this type of aphasic disturbance resulted in the speaker being reduced to using *primaries* (independent words like nouns and nominal verbs) holophrastically. His formulation of the deficit included (a) reduction in the variety of sentences, (b) loss of ties of grammatical coordination and subordination, and (c) loss of inflectional endings and of words with purely grammatical functions (e.g., conjunctions, prepositions, pronouns and articles). According to Jakobson, the order of difficulty in producing noun and verb inflections predicted a higher degree of difficulty with verbs and certain grammatical morphemes as a result of frequency of usage.

Several other linguistic accounts have been offered. Kean (1980) characterized the disorder as a central deficit resulting in an inability to use unstressed phonological elements. This author proposed that phonological words (e.g., open class words such as *boy, play, bank*) are assigned word stress while *clitics* (e.g., closed class words or inflections such as *the, on, /s, /d*) do not contribute to the stress pattern of sentences. Kean suggested that in agrammatism, the phonological representations retained or omitted are distinguished on the basis of clitics versus phonological words. That is, the items that are typically retained in agrammatic speech are the stressed phonological words and those that are omitted are typically the unstressed clitics.

Grodzinsky's (1984/1986/1990) *trace deletion* hypothesis utilizes the model of grammar presented in Chomsky's (1981/1986) government binding (GB) theory to describe the syndrome of agrammatism. This grammatical framework incorporates the constructs of the *move alpha* rule and phonologically empty categories (abstract markers called *traces*). That is, structural representations reflect the thematic relationships of noun phrases (NPs) to verb phrases/predicates that are mediated by traces. Grodzinsky's theory is a structural account that proposes a failure in *coindexing* (linking) traces with their antecedent NPs plus a *default* heuristic invoked to compensate for the syntactic failure. This author suggested that agrammatic patients make errors in producing items that are not phonologically specified at one level of syntactic structure (e.g., function words, inflectional affixes, and empty categories) and argued that it is these same items that they have difficulty comprehending. Grodzinsky's theory is concerned with the nature of the syntactic structures that an agrammatic processor is able to employ (performance) rather than with grammatical competence. Grodzinsky's and Chomsky's theories are elaborated more fully in later sections of this chapter.

Lapointe (1983) presented a *unified morphology theory* (UMT) stated in terms of the morphological properties of items inserted into syntactic structures. Morphology

is recognized as a distinct grammatical subsystem in this theory. According to the theory, both inflectional and derivational morphemes are generated in the same grammatical subsystem, namely, within a distinct morphological component that interacts in an integral way with the lexicon. The main point of interaction between syntax and morphology is the point in a syntactic derivation at which lexical information is inserted into syntactic structures. The resulting morphosyntactic structure contains structure generated by syntactic and morphological rules as well as structure inserted from the lexicon. All operations affecting morphological structure occur prior to lexical insertion. This account claims that the fundamental properties of agrammatic speech and asyntactic comprehension follow directly from assumptions made about normal processing and about damage to the two interacting processing mechanisms. That is, the retained elements in agrammatism (i.e., open class vocabulary) are those items that are inserted into morphosyntactic structures during lexical insertion. Lapointe proposed an *elevated threshold* account suggesting that agrammatic speakers have difficulty retrieving complex word forms so they tend to use simpler ones.

Tissott, Mounin, Lhermitte, and Dordain (in McCarthy & Warrington, 1985) introduced a morphological-syntactic dichotomy in 1973. These authors identified two subtypes of agrammatism in a group of nine patients studied -- a syntactic subtype in which word order and verb use was impaired, and a morphological subtype in which usage of inflections and function words was impaired. Tissott et al. tentatively identified these two subtypes with impairments at the levels of *deep* (syntactic subtype) and *surface* (morphological subtype) structure in keeping with Chomsky's transformational grammar. As previously noted, Chomsky's theory will be discussed in a later section of this chapter.

Psycholinguistic theories

General psycholinguistic factors (e.g., redundancy, stress saliency, and frequency) have been used to account for patterns of grammatical omissions. Goodglass (1962) proposed the *stress saliency* hypothesis and defined salience as ...*psychological prominence of a speech unit in the speaker's mind* (p. 110). According to this author, prominence is based on stress, phonological distinctiveness, affective value and informational significance. Goodglass purported that the relational words of grammar usually lack salience due to their abstract nature and dispensability in conveying information, thus they are vulnerable in that agrammatic speakers omit what they have difficulty producing. For example, the syllabic variants of the final /s/ and /d/ (as in *horses, nurses, watches,* and *waited)* are retained more often than the nonsyllabic variants (as in *books, boys, plays,* and *played*). It has been conjectured that the salience of the extra syllable makes it more available to the agrammatic patient (Goodglass & Berko, 1960; Goodglass & Geschwind, 1976; Goodglass & Hunt, 1958). Other studies found that unstressed grammatical words were dropped in initial position but almost never dropped when they occurred between two stressed words, (e.g., *The open door* versus *Open the door*) (Gleason et al., 1975; Goodglass, Fodor, & Schulhoff, 1967).

Early psycholinguistic theories also focused on the motoric aspects of the disorder, i.e., the strain of speaking. The principle of *minimum effort* was used to explain over-reliance on content words as a conscious attempt to maximize the amount of information with the fewest words (Isserlin as discussed in Goodglass, 1968). This principle of economy maintained that aphasic speakers reduced their output to the barest information-carrying words of a message. However, these accounts lack any principle that would determine which elements of a message are essential to carry information (need to be retained) and which are unnecessary (may be omitted). These theories of economy of effort also seem untenable based on clinical observations of

agrammatic patients' struggle to make their output approximate standard English as evidenced by their repeated attempts at self-correction.

Closely related to psycholinguistic accounts of morphological deficit patterns noted in agrammatism is the *closed class* hypothesis. Variations of this hypothesis range from proposing that agrammatism is due to an impaired closed class vocabulary -- a problem of lexical access (Friederici, 1982/1985; Friederici & Schoenle, 1980; Goodglass & Menn, 1985; Grodzinsky, 1984; Saffran et al., 1989; Swinney, Zurif & Cutler, 1980; Wales & Kinsella, 1981; Zurif, Caramazza, & Myerson, 1972), to proposing that the impairment is due to an inability to use the closed class vocabulary as input to a parser (Bradley, Garrett, & Zurif, 1980; Friederici, 1985).

Bates and colleagues' (Bates, Friederici, & Wulfeck, 1987a & 1987b; Bates, Friederici, Wulfeck, & Juarez, 1988) cross-linguistic studies supported the closed class hypothesis. The results of their studies indicated that word order was preserved in all three languages studied (English, German and Italian), while morphology was impaired in language specific patterns. These authors offered a *competition* model -- a performance rather than a linguistic model -- that focused on *cue validity*. This model is a general theory of grammatical processing that accounts for both qualitative and quantitative differences in sentence processing across natural languages. The concept of cue validity refers to the information value of a given grammatical, phonological, or lexical cue to sentence meaning. For example, in English, word order is a highly informative or valid cue to thematic roles. Thus, word order in English helps a listener figure out *who did what to whom*. Word order in other languages (e.g., Italian and German) is low in cue validity while morphological and/or lexical semantic cues are high. Bates et al. concluded that vulnerability of morphology is a fact about language breakdown and maintained that the problem in agrammatism has more to do with item retrieval than it does with item ordering.

Memory deficit hypotheses

Other accounts of agrammatism have focused on aspects of memory that may be involved in sentence processing. Caramazza et al. (1978) suggested that aphasic patients' memory storage capacity for verbal sentence material may be severely limited. To review, these authors' study assessed memory for surface structure of three sentence types and found that aphasic patients were better able to recover content than function words and that center-embedded sentences were more difficult to process than other sentence types. Caramazza et al. interpreted these results as indicating that aphasic patients do not have normal surface structure memory representations.

Linebarger et al.(1983) proposed a *trade-off* hypothesis that implicated short term memory (STM) deficits. This hypothesis was suggested on the basis of the discrepancy between good performance on a grammaticality judgment task and poor performance on a picture-pointing sentence comprehension task. Linebarger et al. purported this discrepancy could be due to a trade-off between syntactic and semantic processing such that optimal performance in one domain sacrifices accuracy in another. Because agrammatic aphasic patients purportedly have restricted immediate memory spans, they are prevented from recovering the relevant structural (syntactic) as well as semantic information necessary for the complete interpretation that is required in a comprehension task.

Saffran (1990) also asserted that there is an association between sentence comprehension deficits and span limitations in patients with STM deficits. She postulated that these patients fail to make use of syntactic information due to the risk of losing it during processing, thus they adopt a *quick and dirty* approach to thematic role assignment. That is, they rely on local syntactic or pragmatic information and/or heuristics in cases where the thematic role of the subject NP remains indeterminate for some distance into a sentence because they are unable to refer to a verbatim record of the input. Martin (1987), however, proposed that STM span has no relation to

syntactic comprehension. This author proposed that WM, which stores partial results during sentence processing, interacts with the ability to use syntactic information. That is, processing load is determined by the increased demands of complex sentences to store partial results of analysis while further analysis is carried out. For example, object-relative clause constructions present a greater processing load than subject relative-clause constructions because the thematic role of the head noun can be determined sooner in a subject-relative clause construction.

The results of Lukatela et als.' (1988) study with Serbo-Croatian-speaking patients also seemed to implicate WM. The subjects in this study demonstrated preserved ability to make grammaticality judgments in the presence of impaired comprehension. Lukatela et al. suggested that the subjects' knowledge of syntax was intact in circumstances that do not tax WM (i.e., grammaticality judgment), but their linguistic knowledge is less accessible in contexts that place heavier demands on WM (i.e., sentence comprehension).

Kolk and van Grunsven (1985) and Heeschen (1985) discussed their *adaptation* theory in terms of memory limitations. The essence of this theory comes from Isserlin and assumes that the syndrome of Broca's aphasia is produced by the various ways of compensating for the impairment. This compensation is viewed as a means of overcoming or adapting symptoms of impairment and it can either prevent or produce symptoms. That is, adaptation is not a necessary consequence of the underlying impairment but rather the result of a conscious decision to adapt or not, depending on the purpose of the communicative interaction. For example, as a result of memory limitation, the process of sentence planning is halted as the agrammatic speaker becomes aware of his/her inability to continue. This will manifest as a pause or an overt repair (attempt to generate the sentence again) and nonfluent speech will result. Thus, agrammatism could be based on performance limitations rather than loss of syntactic representations or processing mechanisms.

Central syntactic deficit hypotheses

Zurif and colleagues (Zurif et al., 1972; Zurif et al., 1976) characterized agrammatism as a *loss* of knowledge based on evidence gained from a metalinguistic task. To review, Zurif et als.' 1972 study (described in a previous section of this chapter) used an experimental paradigm that required subjects to sort words from a variety of sentences on the basis of how closely related the words in the sentence were. These authors results indicated that relatedness judgments of the agrammatic aphasic subjects violated the linguistic unity of both noun and verb phrases. Zurif et al. interpreted these findings as reflecting a disruption of the underlying language mechanism and suggested that agrammatism reflects a language rather than a performance limitation. That is, agrammatic Broca's aphasic patients' grammatical knowledge is limited in the same manner as their production.

Based on findings of impaired comprehension in agrammatic aphasic individuals, other theorists also have considered agrammatism to be the result of a central syntactic disorder (Berndt & Caramazza, 1980; Goodglass, 1968; Goodglass & Hunt, 1958; Kean, 1985; Saffran et al., 1980). This postulate suggests parallel problems in production and comprehension.

In keeping with a postulated central deficit, numerous authors have characterized agrammatism as a *mapping deficit* - an inability to map thematic roles (semantic interpretation) onto syntactic structure (grammatical function) (Caplan, Baker, & Dehaut, 1985; Caramazza & Berndt, 1985; Linebarger et al., 1983; Saffran et al., 1980; Schwartz, Linebarger, & Saffran, 1985; Schwartz et al., 1987; Schwartz, Saffran, & Marin, 1980). Schwartz et al. (1985) explained that what is lost in agrammatism is the capacity to *map* thematic (conceptual) roles (e.g., agent or recipient of the action) onto syntactic categories (e.g., subject or object of the verb) in sentences where constituents have been moved out of canonical order (e.g., passive and object-cleft constructions). Comprehension of thematic roles is preserved as demonstrated by

better comprehension and production of nonreversible canonical sentences that do not involve movement (e.g., active constructions) and depend only on understanding the lexical items for correct interpretation.

Others (Caramazza & Hillis, 1989; Miceli et al., 1983; Nespoulous et al., 1988) have refuted this central notion and have reported dissociations between receptive and expressive modalities in aphasic patients. The patients in these studies most commonly presented with agrammatic production and purportedly intact syntactic comprehension. For example, Miceli et al's. (1983) study contrasted two agrammatic Italian-speaking aphasic patients' comprehension and production performance on various tasks. The nonfluent patient's syntax comprehension was tested extensively and performance was reportedly within normal limits. Syntax comprehension was only briefly explored with the fluent patient, but reportedly was also within normal limits. On the basis of the contrasting agrammatic production deficits in both patients, the authors concluded that neither patient had damage to a central language processor. Nespoulous et al. (1988) also investigated a French-speaking Broca's aphasic patient who produced agrammatic speech in the absence of any comprehension deficit. On the basis of the extensive psycholinguistic testing administered to this patient, these authors argued that the patient's deficit was not a central one and not crucially syntactic at the level of knowledge. Finally, Caramazza and Hillis (1989) studied an English-speaking subject whose sentence production contrasted with her sentence comprehension. That is, the subject's comprehension performance was judged to be within normal limits while sentence production was observed to be severely impaired.

The results of several other studies have refuted Zurif and colleagues' loss idea based on agrammatic aphasic patients' ability to make grammaticality judgments on syntactically complex sentences even when asyntactic comprehension is evident (Berndt et al., 1986; Linebarger et al., 1983; Lukatela et al., 1988). That is, demonstrations of ability to perform grammaticality judgments has been taken as evidence for intact

syntactic knowledge. For example, Berndt et al. and Linebarger et al. interpreted the results of their studies as evidence that asyntactic comprehension does not result from inability to perform syntactic analysis. Lukatela et al. concluded that agrammatic aphasic patients were able to use bound closed-class morphemes in on-line sentence processing. All of these authors seem to infer that the comprehension impairment is a result of a processing rather than a grammatical knowledge deficit. Because agrammatic aphasic subjects' ability to comprehend simple (nonreversible) active sentences is largely intact, it has been surmised that the parsing operations and/or memory capacity needed to support the more complex syntactic analysis that is required for reversible and more complex sentences (e.g., passive and object-cleft) is impaired.

In summary, the theories of agrammatism presented implicate several possible areas of language impairment as did the various studies of sentence comprehension and production in aphasia in the preceding sections of this chapter. Problems with morphology, phonology, lexical retrieval, and syntactic structure as well as memory limitations have been postulated in subjects presenting with agrammatism. A more in-depth discussion of the theory that underlies the treatment methods employed in the present study follows.

Chomsky's Government Binding Theory

Chomsky (1986) postulates two levels of description for a sentence--surface constituent structure (*S-structure*) and an underlying form (*D-structure*). These two levels of representation are connected by a set of phrasal movement rules or *transformations*. A transformation is an operation that moves a phrase (e.g., a NP) from one location to another within a sentence. Transformations move sentence constituents around in various ways that complicate simple relationships between thematic roles and grammatical positions.

Chomsky's universal grammar theory of language consists of four levels of representation and various subsystems of rules. The general organization of these

levels and rules is outlined in Figure 4. Phrase structure rules (I) form phrase markers--representations in which categorical structures like NPs, prepositional phrases (PPs) or clauses are indicated. These rules generate an infinite class of abstract D-structures that express semantically relevant grammatical functions and relations. Transformational rules (II) convert phrase markers formed at D-structure into the actually observed S-structures in which the same relations are also represented through traces. D-structure is mapped by transformational rules to S-structure. When a category is moved by a transformation, it leaves behind a trace that has no phonetic content. Phonological rules (III) convert S-structures to phonetic form (PF) and other rules (IV) convert S-structures to representations in logical form (LF). PF and LF constitute the interface between language and other cognitive systems to yield a direct representation of sound and meaning.

The orientation of the various levels of representation and subsystems of rules represented in Figure 4 express structural relations only. It entails nothing about the temporal order of speech production or processing, but it does seem to imply that the same levels and rules underlie both production and comprehension of language.

Jackendoff (1972) suggested that the lexical entries of verbs must correlate grammatical and thematic relations. Chomsky's theoretical linguistic government binding (GB) theory postulates that when we acquire verbs we acquire the knowledge about the kinds of sentence structures in which they can occur. This information is represented as part of the verb's entry into our lexicon and includes a verb's *predicate-argument structure*--a set of thematic roles that can be selected by the verb. The verb transmits a thematic role to this trace-argument structure. For example, the verb *chase* requires two arguments--an external argument or agent (someone/thing doing the chasing) and an internal argument or theme (someone/thing experiencing the chasing). That is, the verb *chase* is lexically marked for taking these two arguments which must be represented at all syntactic levels.

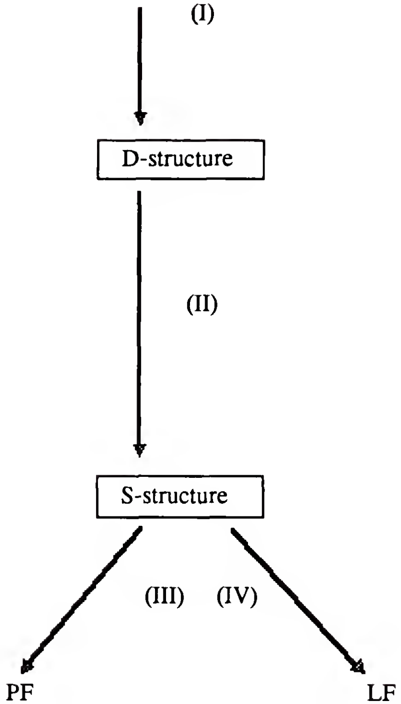


Figure 4. Chomsky's (1986) theory of language structure

One of the basic principles of Chomsky's GB theory is the *projection principle*. This principle states that representations at each syntactic level are projected from the lexicon (mental dictionary), i.e., they observe the subcategorization properties of lexical items. This means that the properties of a lexical item must be satisfied at all levels of representation in the syntax in order to ensure proper thematic role assignment. The projection principle requires insertion of a trace into any position from which a lexical item has been moved. For example, any NP that would normally occupy a thematic position and receive a thematic role directly leaves a trace in its original thematic position when moved to a nonthematic position. This movement results in the formation of an *argument chain* that *coindexes* (links) the moved NP to its trace.

Chomsky's theory also includes the *theta criterion* which states that every NP must have a single, unique theta role. Theta role assignment takes place within the verb phrase and involves identification of an argument phrase with a position in a predicate-argument structure. That is, an NP in a sentence can occupy an argument position (subject, direct or indirect object) and it is assigned its thematic role (agent, theme, goal, predicate) by the verb. For example, in the canonical active sentence, *The boy chased the girl*, the NP *The boy* occupies the canonical (usual) preverbal subject argument position and is assigned the role of agent. The NP *the girl* occupies the canonical postverbal direct object argument position and is assigned the role of theme.

As previously discussed, Chomsky purports two syntactic level representations for a sentence--D-structure (underlying form) and S-structure (surface realization). GB theory asserts that S-structure results from D-structure and that thematic roles of NPs are assigned to argument positions by the verb phrase at D-structure. In complex noncanonical sentences, NPs are moved out of their canonical position in D-structure into other positions to derive S-structure via the *move-alpha* rule. The trace mechanism

of the projection principle allows the assignment of thematic roles to NPs that have been moved out of their canonical argument position. The trace (*t*) is coindexed with the moved constituent to reflect the co-reference relation between the two argument positions. The thematic role that was assigned by the verb to the trace in the original position is inherited by the coindexed (*i*) moved constituent. Using the canonical active sentence in the preceding paragraph, a noncanonical passive construction is derived by applying the move-alpha rule to yield--[*The girl*]$_i$ [*was chased*$_{t_i}$] *by the boy*]. Although the NP *the girl* now occupies the preverbal canonical subject argument position, it retains the thematic role (argument status) of *theme* (direct object) that was assigned by the verb in the postverbal position at D-structure. This passive sentence illustrates the argument chain of the NP *the girl* that is coindexed with its trace in the postverbal position. In other word, subjects in passive sentences have the same thematic role as the corresponding direct objects in active sentences (Radford, 1988). The presence of the trace in the postverbal object position follows directly from the projection principle, i.e., there must be an NP there, albeit an empty one, and the trace satisfies this condition.

The move-alpha rule involves two kinds of movement: *wh-movement* to derive relative clause, object cleft, and wh-interrogative sentence constructions, and *NP-movement* to derive passive, raising, ergative and middle sentence constructions. Wh-movement involves moving wh-phrases from canonical postverbal direct-object (argument) positions to non-argument positions leaving a wh-trace. Thus, in wh-movement, only the place from which the sentence element moves is projected from the verb. NP movement in simple full passive sentences moves a NP from the canonical postverbal direct object (argument) position to the canonical preverbal subject (argument) position leaving an NP-trace. Thus, in NP movement, both the place from which the sentence element moves and the place to which it moves are argument positions projected from the verb. For example, again using the canonical active

sentence, *The boy chased the girl*, the move-alpha rule is used to derive the S-structure noncanonical object-cleft sentence--*It was the girl* [*who*]$_i$ [*the boy chased*$_{t_i}$]. The NP *who* is moved from the canonical postverbal direct object argument position to a position not directly assigned a thematic role (a non-argument position) in the dependent clause *who the boy chased*. *Who* is linked with the trace in the canonical argument position that was assigned its thematic role by the verb in the original postverbal position at D-structure.

The distinction between these two types of linguistic movement suggests that the processing routines involved are different for each type of movement. If this is so, then this distinction has implications for treatment. For example, generalization of treatment effects would not be expected from one type of movement to the other because of the different manner in which movement occurs from D- to S-structure. Additionally, sentences involving NP-movement should be easier to comprehend and produce than those involving wh-movement because of the number of phrasal nodes per sentence type. That is, wh-traces must be coindexed with their antecedents across clausal boundaries (dependent and independent clause) while NP-traces can be coindexed with their antecedents within the dependent clause boundary (Berwick & Weinberg, 1984). Caplan et al. (1985) did find that object relative sentences were more difficult to comprehend than passive sentences in their aphasic subjects.

Grodzinsky (1986/1990) suggested that agrammatic patients can assign traces but cannot bind them. This author hypothesized that inability to support traces in syntactic representations accounts for the pattern of spared versus impaired comprehension observed in these patients. Grodzinsky proposed that patients apply the default principle to assign the role of agent to NPs in subject position. This trace deletion theory asserts that the default principle reflects nonlinguistic knowledge that the agent role is usually associated with subject position. Passive sentences present a *double agent* problem, i.e., either the subject NP or the NP in the by-phrase can be

assigned as agent. Thus, the asyntactic comprehender solves the problem by guessing which NP should be assigned the agent role and which the theme role. This approach can also be extended to object-cleft constructions. That is, the failure to coindex the postcopula NP with its trace results in its possible utilization as an agent. Thus, agrammatic patients construct syntactic representations that are ambiguous with respect to semantic interpretation.

Treatment Studies

Numerous treatment approaches to rehabilitation of agrammatism have been attempted with varying degrees of success. Approaches that have tended not to use linguistic theory to derive treatment methods will be reviewed first (Davis & Tan, 1987; Doyle & Goldstein, 1985; Doyle, Goldstein & Bourgeois, 1987; Helm-Estabrooks, Fitzpatrick, & Barresi, 1981; Helm-Estabrooks & Ramsberger, 1986; Holland & Levy, 1971; Kearns & Salmon, 1984; Naeser, 1975; Salvatore, 1985; Salvatore, Trunzo, Holtzapple & Graham, 1983; Thompson & McReynolds, 1986; Thompson, McReynolds & Vance, 1982; Wambaugh & Thompson, 1989; Weigel-Crump, 1976). These studies have investigated treatment effects on a number of sentence types.

Holland and Levy (1971) trained seven aphasic subjects to use an active sentence. No information was reported in this study relative to the subjects' speech and language behaviors or time post-onset. The programmed instruction procedure utilized was administered via a teaching machine and consisted of reading, speaking, writing, and repeating the noun and verb phrases of the sentence. A 30-item generalization test was developed to assess ability to comprehend, orally read, repeat, and produce (a) the trained sentence, (b) transformations of the trained sentence (e.g., interrogative, negative, passive), and (c) four additional items containing vocabulary changes within the trained sentence format. Training resulted in improved ability to use the sentence trained with limited generalization to transformations of the trained sentence or to

sentences with lexical changes. Minimal change as a function of task modality occurred other than the productive aspects of the trained sentence. Because only pre- and post-training data were collected, even the change in production of the trained sentence could be interpreted as nothing more than variability of performance from one observation to the other.

Naeser (1975) investigated a structured approach to teaching three basic sentence types to four aphasic subjects selected on the basis of good verbal output and auditory input as measured by the *Porch Index of Communicative Ability*, (*PICA*; Porch, 1967). The sentence types trained were (a) verb form *to be* used in third person singular, (b) transitive verb used in third person singular, and (c) intransitive verb used in third person plural. The manner in which these sentence types were *taught* was not reported. All subjects were tested pre- and post-treatment by presenting three picture types representing the three basic sentence types and asking a question to elicit the appropriate sentence type. Post-test scores indicated all subjects demonstrated improved production of all sentence types trained and this result was interpreted as testifying to the efficacy of using a structured approach to teach basic sentence types. Inspection of the data, however, revealed that the overall level of responding pre-treatment was high and the statistical significance of the change was not reported. In addition, the author reported that one control subject demonstrated improvement also, thus the strength of the reported treatment effect is questionable. Pre- and post-treatment data are always questionable relative to the variability inherent in this population, as evidenced by the decrease in post-test PICA scores of the subjects who received treatment in this study.

Weigel-Crump's 1976 treatment study was an effort to examine whether the agrammatic component in adult aphasia reflects an underlying loss of efficiency in retrieving words from the lexical store or a reduction in the store itself. The purpose of this study was to determine the efficacy of concentrated drill in picture-description

versus conversational stimulation for six adult aphasic subjects who evidenced a predominant impairment in syntax generation. Prior to and following treatment, all subjects were asked to respond to drawings designed to elicit three types of sentences: (a) NP + verb *to be* predicate, (b) NP + present progressive verb + object; and (c) NP + intransitive verb + prepositional modifier. The study compared improvements made by two groups of expressive aphasic subjects. One group of three subjects received a one-month program of informal speech and language stimulation followed by a one-month period of programmed language therapy while another group of three subjects received one month of programmed therapy alone. Results indicated that both groups improved in picture description following the programmed language regime with no gains as a result of informal speech and language stimulation. Both groups reportedly improved their ability to formulate both drilled and non-drilled sentences. This generalization in syntax retrieval skills was concluded to lend support to theories that purport loss of word retrieval efficiency rather than reduction of word store. While this study appears to lend credence to the value of structured speech and language rehabilitation versus informal language stimulation in adult aphasics, the purported generalization results seem questionable due to several methodological flaws. For example, there was no control group and the research design used (pre- and post-treatment measures only) did not allow for experimental control. In addition, it was not clear which sentence structures were trained and training procedures were poorly described.

The Helm Elicited Language Program for Syntax Stimulation (HELPSS, Helm-Estabrooks, 1981) is a complete package for increasing utterance complexity with multiple examples of eight different sentence constructions at two levels of difficulty using a story completion technique. This program, based on Goodglass' (1968) hierarchy of sentence difficulty discussed previously (refer to Table 1), was used to treat one patient with severe agrammatism (Helm-Estabrooks et al., 1981). Pre, mid-

and post-treatment testing following ten and one-half weeks of treatment reportedly showed improved test scores and increased use of grammatical constructions in spontaneous conversation. However, the test used to measure syntactic skill, i.e., the *Northwestern Syntax Screening Test* ([NSST], Lee, 1969) has not been standardized on aphasic patients and no data were presented attesting to the purported generalization to conversation. In addition, no data were presented to document the course of treatment making it difficult to assess the efficacy of this treatment program. Helm-Estabrooks and Ramsberger's 1986 study describes the response of six subjects to the treatment program and again reported that dependent test scores obtained before and after treatment showed improvement in verbal expression. Again, this research design did not allow for experimental control, thus reported changes may have been due to the variability between observations rather than to the efficacy of treatment.

In fact, the results of four other studies called into question the efficacy of the HELPSS program. Salvatore et als.' (1983) study with seven subjects indicated that none of their subjects conformed to the suggested hierarchy presented in the program manual. This study demonstrated that performance varied across three consecutive baseline measurement sessions, thereby questioning case study reports dealing with the efficacy of the procedure. Salvatore's (1985) follow-up study with three subjects used the HELPSS stimuli in conjunction with a multiple baseline design with multiple probes to assess the effectiveness of training across behaviors. Sentence types were trained in the hierarchical order presented in the program manual. Salvatore concluded from the results of this study that training was effective for each level and sentence type, but little generalization across behaviors or to untrained sentences within behaviors occurred.

Doyle and Goldstein (1985) and Doyle et al. (1987) also examined the training and generalization effects of HELPSS in a total of six subjects across studies using a multiple baseline design across responses. These authors concluded that the effects of

these procedures were limited to improved production of the constructions trained and that generalization to novel stimulus conditions was not an automatic consequence of acquisition. Doyle et als.' studies indicated that the effects of such training on the adequacy of the subjects' responses may be limited.

Thompson et al. (1982) used a matrix-training procedure to train acquisition of locatives in multiword utterances in two Broca's aphasic subjects. A multiple baseline design across behaviors was used to assess acquisition and maintenance of trained behaviors and generalization of untrained locatives to items within trained and untrained matrices as well as to spontaneous speech. Results of this study indicated that treatment was effective in facilitating acquisition and maintenance of target locatives for both subjects. Generalization to untrained items within trained and untrained language matrices occurred. No appreciable change in the use of locatives in spontaneous speech was noted for one subject.

Kearns and Salmon (1984) investigated auxiliary and copula verb sentence constructions using a single subject ABAB reversal design with two Broca's aphasic subjects. These subjects were taught to produce third person singular auxiliary *is* in sentence contexts to determine if production would generalize to untrained auxiliary *is* items and to copula *is* contexts. Auxiliary *is* training and retraining consisted of an imitation phase (verbal model presented to be imitated) followed by a spontaneous phase (requested description of depicted action). Reversal training consisted of training the subjects to produce their baseline, telegraphic sentence forms in which auxiliary or copula verbs were deleted. Results revealed that training the present tense auxiliary *is* resulted in generalized responding to untrained auxiliary and copula *is* while transfer to spontaneous speech was negligible.

In contrast to the previous studies, Davis and Tan (1987) did not investigate a particular sentence structure. These authors employed a multiple-baseline single-subject design to study the effects of *Schuellian* sentence stimulation treatment on one

subject's verbal sentence production. The subject was not trained for specific stimulus-response pairs or particular grammatical forms. Instead, a *loose training* approach with linguistic cues was used. This agrammatic aphasic patient had not been using speech functionally for six months prior to the study. Treatment was applied sequentially across three sets of picture stimuli depicting familiar activities. The steps for eliciting description of the pictures involved repetition, retrieval of single words via questions, and reverse chaining via sentence completion. Performance was measured by probing verbal description of each of the three sets of stimuli. Results showed that treatment influenced description of treated pictures and some generalization occurred to untreated sets; however, pre- and post-testing did not indicate that stimulus generalization had occurred. The ABA (pre-treatment, treatment, post-treatment) design used in this study weakens the authors claim that the treatment influenced picture description because (a) the trained behavior did not reverse to baseline levels upon withdrawal of treatment for two of the three picture sets trained, and (b) generalization occurred to untreated sets before treatment was applied.

Several studies conducted by Thompson and colleagues have focused on acquisition of wh-interrogatives. Thompson and McReynolds (1986) compared the effects of direct-production and auditory-visual stimulation treatment on sentence production. Four subjects were trained to produce selected exemplars of wh-interrogatives in complete sentence contexts while generalization to untrained exemplars and untrained forms was assessed. Results indicated that direct-production treatment was consistently more effective than auditory-verbal stimulation. Generalization within wh-question forms was parallel to acquisition while generalization across forms was not observed with either of the treatments.

In a second study, Wambaugh and Thompson (1989) studied response generalization within and across two wh-interrogative forms (*what* and *where*). In addition, these authors assessed stimulus generalization across a variety of settings and

persons including (a) prompted interviews with a non-trainer examiner in non-treatment rooms, (b) conversations in novel social dyads with unfamiliar persons in therapy rooms, and (c) mealtime conversations with family members in their homes. Attempts were made to facilitate stimulus generalization when it did not occur. The four subjects in this study showed variable response generalization to untrained exemplars and little generalization to grammatically different constructions. Stimulus generalization occurred in only one of three conditions. Generalization treatment was effective in facilitating generalization to an additional stimulus condition for two of the four subjects. The authors concluded that different linguistic rules are likely utilized for forming various wh-questions, thus training one form might not be expected to result in generalization to another.

Some recent approaches have begun to make use of linguistic theory as the basis of treatment; however, the results of some of these approaches are inconclusive due to methodological concerns (Byng, 1988; Jones, 1986; LeDorze, Jacobs & Coderre, 1991; Loverso, Selinger & Prescott, 1979; Saffran, Schwartz, Fink, Meyers, & Martin, 1992). Loverso et al. (1979) examined the applicability of the *verb as core* model based on case grammar for treatment. These authors used verbs as the pivot-stimuli and wh-questions as cues to provide a framework for verbal and graphic generation of actor-action-object to form complete sentences. Two aphasic subjects with posterior left hemisphere lesions were tested pre- and post-treatment with the *PICA*. Statistically significant differences were noted in pre- and post-treatment *PICA* scores for both subjects, i.e., improvement in post-treatment scores. Loverso et al. concluded that the verbing program was responsible for the improvement; however, this study lacks experimental control in that the improvement may simply have reflected variability between the measurements taken pre- and post-treatment. Thus, the research design does not allow appropriate examination of the treatment effect.

Jones (1986) developed a verb treatment procedure based on the premise that comprehension of sentence constituents formulated at the functional level of representation might be an important aspect of sentence production treatment. His step-by-step program targeted improving understanding of verb meaning relations using wh-interrogatives. Subjects were trained to make judgments about (i.e., recognize) which words *went together* in written sentences; no verbal output was demanded. Stimuli increased in complexity over time as comprehension was demonstrated. A spontaneous speech sample taken during treatment reportedly indicated that sentence structure was beginning to emerge. This observation was interpreted as evidence that the subject had grasped the concept of verb meaning relations and their mapping. However, no experimental design was used in this study during treatment to insure that changes noted were attributable to the treatment.

LeDorze et al. (1991) replicated Jones' (1986) verb treatment study using pictures instead of written stimuli. This study also focused attention on verbs and their meaning relations in order to improve oral expression. These authors purported that the results of their study indicated both response and stimulus generalization had occurred for oral but not written expression; however, examination of the data presented did not indicate significant change. In fact, one of the behaviors under observation increased before treatment was applied, thus experimental control was lost. In addition the study used an inappropriate design (ABA) in that treated behaviors did not reverse to baseline levels upon withdrawal of treatment.

Byng (1988) used *mapping treatment* to remediate sentence processing deficits with two subjects. Comprehension of reversible passive and locative sentences were targeted. The nature of the treatment was well defined but effects of the treatment were difficult to evaluate because it was carried out at home by the subjects and differed for each subject. In addition, no baseline data were reported and no repeated measures were taken, thus assessment of the reported improvement in comprehension

of targeted sentences and generalization across modalities (comprehension to production) could not be accomplished. The changes that occurred during the study may have resulted from treatment or they simply may have reflected variability in the four observations of the behaviors under study.

Saffran et al. (1992) also used mapping treatment to train comprehension in eight subjects. According to these authors, mapping therapy focuses on the recovery of thematic role information from input sentences in order to facilitate sentence production. Treatment directed attention to the verb in a sentence and to the relation between the verb and its noun arguments. In other words, subjects were trained to identify the subject and object NPs of transitive sentences of varying degrees of complexity. Sentences were presented in both auditory and written form and probing for the subject and object NPs was accomplished by asking questions like *Which one is doing the verb-ing?* (for subject NP) and *What is she/he verb-ing?* (for object NP). The probe questions were associated with a distinct pen color. Subjects responded to verbal questions by underlining with the pen handed to them the appropriate NP in a typed sentence presented on a card. The primary mechanism of training was turning these cards over to check the response against the correct response written on the back of the card in order to provide immediate feedback. Saffron et al. concluded that their treatment was efficacious because they found parallel improvements in comprehension and production. This study was problematic in numerous ways. For example, only two of their subjects seemed to present the symptom pattern that defines a mapping deficit (i.e., impairment in both comprehension and production). In addition, no repeated measures were used, thus it is difficult to asses whether the purported changes were due to inherent variability from one observation of the behavior to another, or to the treatment applied, or to the fact that the dependent variable probe was changed during the study. Performance also was high in baseline for some subjects, leaving little room for improvement.

As a follow-up to Wambaugh and Thompson's 1989 study, Thompson, Shapiro, and Roberts (1993) used a linguistic-specific sentence production treatment that was based on Chomsky's *move alpha* rules for wh- and NP-movement. Interrogative sentences selected for treatment required the same type of movement (wh-movement) to derive S-structure from the underlying linguistic representation. This study examined the effects of treatment on two subjects' acquisition of trained and untrained linguistically related wh-interrogatives that involved movement of object NPs. Subjects were trained to produce *what* and *who* questions which are similar in both S-structure and D-structure as well as the movement processes necessary to derive S-structure. For example, the direct object NP *the toy* in a sentence like *The boy is fixing the toy* has received a thematic role of theme at D-structure. *The toy* is replaced by a trace which is co-indexed with the wh-morpheme *what* after it is moved to the sentence initial position in the S-structure question, *What is the boy fixing?* Results of treatment for both subjects revealed acquisition of trained structures and generalization to less complex untrained exemplars. Only one of the subjects demonstrated generalization to other untrained structures.

The linguistic-specific treatment used in the Thompson et al. 1993 study was extended to another structure that requires wh-movement (object-cleft) in a study by Straw (1992). Straw investigated the use of linguistic-specific treatment in two subjects to train *who* interrogative and object-cleft sentence constructions, both of which require wh-movement to derive S-structure while assessing generalization within and across sentence types. Generalization was also assessed in spontaneous discourse, comprehension, grammaticality judgment, and to an untrained sentence type (passive) that required a different type of linguistic movement (i.e., NP-movement) to derive S-structure. Results of treatment indicated that generalization occurred within both sentence types trained in both subjects but generalization across the two trained sentence types requiring wh-movement was observed in only one subject. No

generalization was observed to the untrained sentence type requiring NP-movement in either subject. Improved comprehension scores noted on post-treatment testing was purported to indicate improved comprehension; however, this result could be interpreted as variability in the two observations of the behavior.

Thompson et als.' most recent experiment (Thompson, Shapiro, Jacobs & Schneider, 1994) questioned the relation between particular wh-movement structures. A linguistic-specific treatment program was designed that controlled for a variety of linguistic factors and exploited a purported strength (i.e., thematic role activation) in the agrammatic aphasic population. Seven Broca's agrammatic aphasic subjects were trained to operate on the underlying form of sentences by taking them through the linguistic movement required to derive surface forms of wh-questions. Question forms that required argument movement of the object NP (i.e., *who* or *what* questions) or adjunct movement of the NP contained within the prepositional phrase (i.e., *when* or *where* questions) were trained sequentially. Generalization within and across these two types of questions that rely on similar, but not identical, wh-movement was examined. Three of the subjects demonstrated acquisition and generalization patterns as expected with movement treatment. The other four subjects required lexical discrimination treatment to achieve correct question production. Thus, the results of this experiment indicated two patterns of sentence production that suggested separate loci of deficit. That is, three of the subjects presented a primarily syntactic deficit, whereas the other four subjects presented a primarily sub-lexical selection deficit. The syntactic deficit was characterized by appropriate selection of the wh-morpheme in the presence of inaccurate co-reference between it and the position from which it was moved. The sub-lexical deficit was characterized by consistent mis-selection of wh-morphemes in the presence of accurate co-reference and movement of the appropriate sentence constituent.

The treatment studies that have employed linguistic theory as the basis of treatment appear to have yielded the most promising results in terms of both acquisition and generalization. In particular, the results of Thompson and colleagues' studies that are based on Chomsky's linguistic theory lend support to the choice of treatment used in the present study to remediate sentence production deficits in agrammatic aphasic individuals. As Thompson et als.' studies did not look closely at comprehension of the sentence structures treated, it was considered important to compare comprehension versus production training in terms of both acquisition and generalization in order to examine the relationship between input and output. While several studies have purported that training comprehension resulted in improved production (Byng, 1988; Davis & Tan, 1987; Jones, 1986; LeDorze et al., 1991; Saffran et al., 1992), the effects of treatment were inconclusive due to designs that did not demonstrate experimental control. In addition, the debate regarding the relation between comprehension and production continues. Investigations of this relationship differ in terms of data collection methods, sentence structures examined, and subject classification, thus, it is difficult to compare the results of these studies. For example, numerous studies have claimed that agrammatism reflects a language limitation characterized by parallel deficits in comprehension and production (Berndt & Caramazza, 1980; Caplan et al., 1985; Caramazza & Berndt, 1985; Goodglass, 1968; Goodglass & Hunt, 1958; Saffran et al., 1980; Schwartz et al., 1980/1985/1987; Zurif et al., 1972; Zurif et al., 1976) while others have documented dissociations between receptive and expressive modalities (Caramazza & Hillis, 1989; Miceli et al., 1983; Nespoulous et al., 1988). Some of these studies investigated both speech production and sentence comprehension while others investigated only one or the other. None of the studies systematically measured comprehension and production of the same sentence stimuli. Further, no well-controlled studies have examined the functional relation between comprehension and production, i.e., concomitant co-variance would indicate

similar underlying processes. Thus, the present study was undertaken to address the debate regarding the relation between comprehension and production as well as to test the linguistic theory that underlies the treatment of choice.

Experimental Questions

The primary purpose of this study was to examine the effectiveness of two linguistic-specific treatment methods (comprehension and production training) on the production of two complex sentence constructions (passive and object-cleft) that involve NP- and wh-movement in agrammatic aphasic subjects. Additionally, this study was an extension of previous studies that have demonstrated the efficacy of the type of linguistic-specific treatment chosen for the present study (Straw, 1992; Thompson et al., 1993; Thompson et al., 1994). The following questions were posed:

1. (a) Will linguistic-specific comprehension treatment facilitate acquisition of auditory verbal comprehension of reversible passive and object-cleft sentence forms in agrammatic aphasic subjects?

(b) Will linguistic-specific production treatment facilitate acquisition of verbal production of reversible passive and object-cleft sentence forms in agrammatic aphasic subjects?

2. If comprehension or production of these sentence forms is acquired, will generalization occur to untrained exemplars within and/or across trained sentence types and/or to corresponding untrained active sentences?

3. If generalization occurs, does it occur with both treatment methods?

4. If comprehension or production of these sentence forms is acquired, will generalization occur from comprehension treatment to verbal production, from production treatment to auditory verbal comprehension, and to verbal discourse and written production?

5. If generalization occurs, does it occur with both treatment methods?

Predictions relative to the experimental questions were as follows:

1. Linguistic-specific treatment would facilitate acquisition of the sentence constructions targeted (Straw, 1992; Thompson et al., 1993; Thompson et al., 1994).

2. Production treatment would prove to be more effective than comprehension treatment in facilitating verbal production (Thompson & McReynolds, 1986).

3. Generalization would occur within but not across the trained sentence forms because of the different linguistic movement involved in deriving surface structure from the underlying linguistic representation (Helm-Estabrooks et al., 1981; Helm-Estabrooks & Ramsberger, 1986; Salvatore, 1985; Salvatore et al., 1983; Doyle & Goldstein, 1985; Doyle et al., 1987, Straw, 1992; Thompson & McReynolds, 1986; Thompson et al, 1993, Thompson et al., 1994; Wambaugh & Thompson, 1989).

4. Generalization from production to auditory verbal comprehension would not occur in that, even if a general grammatical processing deficit exists, it may be realized in different ways in sentence comprehension than sentence production (Martin et al., 1989; Prinz et al., 1978).

CHAPTER II

METHOD

Overview of the Study

This study was designed to examine the acquisition and generalization effects of linguistic-specific comprehension and production treatment on auditory verbal comprehension and verbal production of passive and object-cleft sentence constructions in agrammatic aphasic subjects. Generalization was measured in the following ways: (a) within sentence types, (b) across sentence types, (c) from comprehension treatment to verbal production, (d) from production treatment to auditory verbal comprehension, (e) to verbal narrative and conversational discourse, (f) to written production, and (g) to pre- and post-test measures.

The subjects who participated in the study had difficulty comprehending and producing syntactically complex passive and object-cleft sentence constructions. A multiple baseline design across subjects and behaviors (McReynolds & Kearns, 1983) in combination with an alternating treatment design (ATD; Barlow & Hayes, 1979) was planned to assess the effects of the two treatment methods. Following baseline, subjects were trained to comprehend or produce either passive or object-cleft sentences using either comprehension or production treatment. The ATD phase was to be implemented if training criterion was not met within 15 sessions, i.e., the alternate treatment would then be initiated. This phase was not necessary for any of the subjects, as all achieved criterion with both treatment methods on both sentence types. When training criterion was met on the first sentence type trained, treatment was applied to the other sentence type until criterion was reached on the second behavior

trained. Acquisition and generalization effects of treatment were assessed by analyzing responses to procedures designed to elicit verbal and written production and auditory-verbal comprehension of three sentence types: active, passive, and object-cleft.

Subjects

Four neurologically stable aphasic adults presenting with deficit patterns consistent with asyntactic comprehension and agrammatic production of sentences were recruited from the Chicago, Illinois area to participate in the study. Patterns of asyntactic comprehension were evidenced by the subjects demonstrating greater difficulty understanding linguistically complex (e.g., passive and object-relative clause sentence constructions) and reversible sentences than less complex active and nonreversible sentence constructions. Patterns of agrammatic production were evidenced by the subjects' use of a greater proportion of open than closed class vocabulary in contextual speech, word order difficulty with sentence constituent placement, reduced mean length of utterance (MLU) and effortful, nonfluent speech production. All subjects had varying degrees of difficulty producing syntactically complete reversible active sentences; none of the subjects were able to produce syntactically correct passive or object-cleft sentences.

The subjects were all monolingual English speakers with at least a high school education who had aphasia resulting from a single left hemisphere neurological insult (documented by neuroradiological studies) that had occurred at least six months prior to the initiation of the study. Intact peripheral hearing was verified through audiological screening at 500 and 1K Hz at 30dB and 2K Hz at 35dB binaurally. Vision screening with the Rosenbaum pocket screener documented at least 20/40 acuity with or without corrective lenses. All subjects' scores on the *Western Aphasia Battery* (*WAB*; Kertesz, 1982) were consistent with a profile of Broca's aphasia. Subjects' histories were negative for other neurological disorders or psychiatric problems. All of the subjects had received prior speech-language treatment for varying periods of time; none were

involved in any other treatment during the course of this study. General subject characteristics are outlined in Table 2.

The following tests were administered to all subjects by the author or by a masters level graduate student under the supervision of the author in the Communication Sciences and Disorders Department at Northwestern University:

1. The *WAB* was administered to document the presence of aphasia and clinical symptoms that verified classification of aphasia type.

2. The *Revised Token Test* (*RTT*; McNeil & Prescott, 1978) was administered to assess auditory verbal comprehension of commands that gradually increased in length and complexity.

3. The *Philadelphia Comprehension Battery for Aphasia* (*PCBA*; Saffran, Schwartz, Linebarger, Martin & Bochetto, 1991, unpublished) was administered to assess single word and sentence auditory verbal comprehension and ability to make grammaticality judgments. This battery examined semantically reversible and nonreversible active, passive, locative, object-relative, and subject-relative clause sentence structures.

4. The *Test of Adolescent/Adult Word Finding* (*TAWF*; German, 1990) was administered to document the degree and pattern of word retrieval difficulty.

Results of testing are summarized in Table 3. On the *WAB*, all subjects' scores reflected better comprehension than production; spontaneous speech was nonfluent and agrammatic. Repetition scores reflected mild to moderate apraxic difficulty as length and complexity of stimulus increased. The subjects' scores on both the *WAB* and the *RTT* indicated difficulty with auditory processing as length and complexity of stimulus were increased. The *WAB* and *RTT* scores were consistent with performance on the *PCBA* in that comprehension of lexical sentences that required understanding of the lexical items only was better than comprehension of reversible sentences that required understanding of thematic roles in relation to the verb. The subjects' *PCBA* scores on

Table 2

Subject Characteristics

Subject	Age	Sex	Language	Etiology	Months Post Onset	Aphasia Type	Education	Handedness
1	79	F	English	L frontal meningioma excision	198	Broca's	2 years college	Right
2	39	M	English	L fronto-parietal embolic CVA	107	Broca's	2 years college	Right
3	44	M	English	L anterior/ middle cerebral artery CVA	27	Broca's	Law Degree	Left
4	68	F	English	L tempero-parieto-occipital CVA	36	Broca's	High School	Right

Table 3

Speech and Language Test Results

	Subject 1	Subject 2	Subject 3	Subject 4
Western Aphasia Battery				
Aphasia Quotient	77.0	63.3	62.4	68.0
Cortical Quotient	80.4	68.1	72.4	73.9
Spontaneous Speech	13.0	13.0	12.0	13.0
Fluency/Grammatical Competence	5.0	4.0	4.0	5.0
Auditory-Verbal Comprehension	9.6	7.5	8.1	7.9
Repetition	9.0	6.8	5.2	5.9
Naming	6.9	4.9	6.9	7.2
Reading	7.6	4.8	8.3	7.6
Writing	8.8	6.0	5.8	7.2
Revised Token Test				
Overall Mean Score	11.0	10.4	9.8	12.9
Test of Adolescent/Adult Word Finding				
Total Items Named	41%	34%	39%	15%
Picture Naming: Nouns	49%	43%	46%	8%
Sentence Completion	31%	31%	50%	6%
Description Naming	50%	25%	17%	25%
Picture Naming: Verbs	33%	43%	43%	19%
Category Naming	38%	14%	24%	24%

Table 3 (continued)

	Subject 1	Subject 2	Subject 3	Subject 4
Philadelphia Comprehension Battery for Aphasia				
Lexical Comprehension	98%	98%	100%	98%
Sentence Comprehension	77%	67%	77%	82%
Reversible Sentences	60%	47%	53%	70%
Lexical Sentences	93%	87%	100%	90%
Active/Subject-relative clause	83%	77%	87%	87%
Passives/Object-relative clause	75%	50%	60%	75%
Grammaticality Judgments	95%	86%	92%	93%

canonical active and subject-relative clause sentences were better than their scores on noncanonical passive and object-relative clause sentences. All if the subjects' ability to perform grammaticality judgments was superior to their sentence comprehension ability. Scores on the Naming Subtest of the *WAB* and the *TAWF* indicated moderate word retrieval problems.

5. The experimental stimuli consisting of 20 sentences (see Experimental Stimuli) were probed to assess auditory verbal comprehension and verbal and written production of active, passive and object-cleft sentence constructions. Comprehension responses were elicited by randomly presenting each stimulus pair (pictures for target and foil sentences), one at a time and one time each. The subjects were instructed to point to the picture that corresponded to the target sentence presented verbally, e.g.,

Point to `the woman kissed the man'. (active sentence)

Point to `the man was kissed by the woman'. (passive sentence)

Point to' it was the man who the woman kissed'. (object-cleft sentence)

Responses within five seconds were scored as either correct (+) or incorrect (-). If no response was initiated within five seconds, the stimuli were removed and the next pair presented. Probing continued in this manner until all stimuli were presented for all three sentence types.

Verbal sentence production was elicited by presenting a randomly selected stimulus pair (written sentences and corresponding pictures for the target and foil for passive and object-cleft sentences; pictures only for the active sentences). While pointing to the respective pictures, the clinician explained, *Here are two pictures. One shows a woman kissing a man* (subject NP+verb+object NP) *and the other shows a man kissing a woman* (subject NP+verb+object NP). The following modeling procedure was used to elicit a verbal response for each sentence type:

Active Sentence - *In this picture* (pointing to the foil) *the man kissed the woman . But in this picture* (pointing to the target) .....

Passive Sentence - *In this picture* (pointing to the foil) *the woman was kissed by the man. But in this picture* (pointing to the target) .....

Object-cleft Sentence - *In this picture* (pointing to the foil) *it was the woman who the man kissed. But in this picture* (pointing to the target) .....

Five seconds was allowed for a response to be initiated before removing the stimuli and presenting the next randomly selected pair. Probing continued in this manner until all stimuli were presented for all three sentence types.

Written sentences were elicited in a manner similar to verbal production. A randomly selected stimulus pair (written sentences and corresponding pictures for the target and foil for passive and object-cleft sentences; pictures only for active sentences) was presented. While pointing to the respective pictures, the clinician explained, *Here are two pictures. One shows a woman kissing a man and the other shows a man kissing a woman.* The following modeling procedure was used to elicit a written response for each of the three sentence types:

Active Sentence - *For this picture* (pointing to the foil) *you could write the sentence `the man kissed the woman'. But for this picture* (pointing to the target) *you could write the sentence .....*

Passive Sentence - *For this picture* (pointing to the foil) *you could write the sentence `the woman was kissed by the man'. But for this picture* (pointing to the target) *you could write the sentence* .....

Object-cleft Sentence - *For this picture* (pointing to the foil) *you could write the sentence `it was the woman who the man kissed'. But for this picture* (pointing to the target) *you could write the sentence .....*

Two minutes was allowed for a response to be completed before removing the stimuli and presenting the next randomly selected pair. Probing continued in this manner until all stimuli were presented for all three sentence types.

Scoring of the responses on the verbal and written production probes was done by the clinician administering the probes using the 6-point protocol outlined in Appendix A. The results of these probes can be seen in the baseline phases of Figures 5 through 16.

Considerable variability was noted in comprehension performance across subjects and sentence types during baseline. Comprehension of object-cleft and passive sentences was essentially at, below, or slightly above chance level of 50% accuracy for all subjects. Object-cleft sentence comprehension ranged from an average of 30% to 65% accuracy while passive sentences ranged from an average of 30% to 60% accuracy. Active sentence comprehension was slightly above chance level for all subjects, ranging from an average of 55% to 70% accuracy. These response levels are consistent with the subjects' scores on the *PCBA* in that comprehension of canonical active sentences was slightly better than noncanonical passive and object-cleft sentences.

Verbal production of passive and object-cleft sentences was 0% accurate for Subjects 2, 3, and 4. Subject 1's verbal production of object-cleft sentences also was 0% accurate while her production of passive sentences ranged from 0% to 25% accuracy. Active sentences were produced with a range of from 15% to 95% accuracy and an average of 30% to 60% accuracy across subjects.

None of the subjects were able to write object-cleft or passive sentences correctly. Written production of active sentences ranged from 10% to 40% accuracy across subjects.

6. Two samples of each subject's verbal narrative language were obtained prior to initiation of treatment to document productive language deficits. The subjects were instructed to tell the common fairy tale *Cinderella*. They were provided with a book in which only the pictures were visible and were allowed as much time as necessary to look through the book before relating the story in their own words. A maximum of

fifteen minutes speaking time was allowed and no direct comments or questions were provided once the subject began to tell the story. General encouragement was given to try to keep the subject talking for at least five minutes. Subjects were audiotaped while relating the story and these tapes were subsequently transcribed and coded for the linguistic variables outlined in Appendix B using the procedures developed by Thompson, Shapiro, Li, Jacobs and Schneider (1993, unpublished). The coded transcripts were analyzed using the *Systematic Analysis of Language Transcripts* (*SALT*; Miller & Chapman, 1986).

Table 4 reflects the subjects' performance on the narrative discourse task pre-treatment. MLUs in words ranged from 3.2 (Subject 2) to 8.9 (Subject 4). Subjects 1 and 4s' data reflected more variability in MLU across two samples than Subjects 2 and 3s' data. The percentage of grammatically correct sentences (total number of utterances coded as grammatical sentences/total utterances) ranged from 10% (Subjects 2 and 3) to 63% (Subject 1). Again, Subjects 1 and 4s' data reflected greater variability across samples. The total number of sentences coded as simple sentences was divided by the total number of sentences to derive the percentage of simple sentences. Likewise, the total number of sentences coded as complex sentences was divided by the total number of sentences to derive the percentages of complex sentences. All four subjects had a greater percentage of simple than complex sentences across samples, except sample 1 for Subject 4. Subjects 3 and 4s' data were more variable than Subjects 1 and 2s' in their use of simple versus complex sentences. Mean embeddings ranged from .0 to .7 and were consistent across samples for all four subjects.

The total number of words coded as nouns was divided by total words and the total number of words coded as verbs was divided by total words to derive the percentage of noun/verb use. Subject 2 consistently used a greater proportion of nouns than verbs while Subjects 1, 3, and 4s' noun/verb usage was almost equal. To derive

Table 4

Narrative Discourse Across Two Samples

Sample	Subject 1		Subject 2		Subject 3		Subject 4	
	1	2	1	2	1	2	1	2
Total Utterances	19	27	71	80	60	82	26	31
Mean Length of Utterance	6.5	8.2	3.2	3.2	3.8	3.4	8.9	7.6
% of grammatical sentences	47	63	14	10	10	17	15	32
% of simple sentences	68	67	100	100	51	70	41	54
% of complex sentences	32	33	0	0	49	30	59	46
Mean Embeddings	.4	.5	.0	.0	.4	.3	.7	.6
Total Words	116	186	188	210	173	214	210	211
% of nouns	20	18	36	39	36	33	20	19
% of verbs	22	23	18	17	33	32	23	22
% of open class words	51	52	66	69	81	79	57	52
% of closed class words	49	48	34	31	19	21	43	48

open/closed class percentages, the total number of words coded as open class (nouns, verbs, adjectives, and adverbs) was divided by total words and the total number of words coded as closed class (pronouns, prepositions, articles, and conjunctions) was divided by total words. All four subjects used a greater percentage of open than closed class words, although again Subjects 1 and 4s' use of open versus closed class words was fairly equal.

7. Two samples of each subject's conversational discourse were obtained prior to initiation of treatment, also to document productive language deficits. Six minute samples of topic-constrained conversations with a familiar partner were audiotaped. Table 5 outlines conversational partners' characteristics. Family members who served as conversational partners all passed vision and hearing screenings. All conversational partners were right handed native English speakers with at least a high school education. The subjects and their conversational partners were asked to view short (approximately five minutes) randomly selected pre-recorded ABC American Agenda news segments. When a segment was over, they were instructed to talk about what they had just viewed or any other topic of conversation they cared to. These taped conversational samples were subsequently transcribed, coded, and analyzed in the same manner as the narrative language samples.

The analysis of the subjects' conversational discourse is presented in Table 6. MLUs in words ranged from 2.4 (Subject 3) to 4.7 (Subject 4) and reflected minimal variability across two samples for all four subjects. The percentages reflected in Table 6 were derived in the same way as the percentages discussed in Table 4. The percentage of grammatical sentences used ranged from 7% (Subject 2) to 19% (Subject 4) and also reflected minimal variability within subject. All four subjects used a greater percentage of simple than complex sentences, except sample 1 for Subject 1. Mean embeddings ranged from .0 (Subject 2) to .5 (Subject 1).

Table 5

Conversational Partner Characteristics

Subject	Age	Sex	Language	Education	Handedness	Relationship	Vision Screen	Hearing Screen
1	72	F	English	Masters Degree	Right	Sister	Passed	Passed
2	66	F	English	Bachelors Degree	Right	Mother	Passed	Passed L ear only
3	44	F	English	Law Degree	Right	Wife	Passed	Passed
4	76	M	English	2 years college	Right	Husband	Passed	Passed

Table 6

Conversational Discourse Across Two Samples

	Subject 1		Subject 2		Subject 3		Subject 4	
Sample	1	2	1	2	1	2	1	2
Total Utterances	39	30	62	51	83	85	67	67
Mean Length of Utterance	2.8	2.5	2.8	2.9	2.5	2.4	4.7	3.8
% of grammatical sentences	18	13	7	10	11	14	18	19
% of simple sentences	33	83	100	95	73	89	54	68
% of complex sentences	67	17	0	5	27	11	46	32
Mean Embeddings	.5	.2	.0	.0	.2	.1	.4	.3
Total Words	81	46	122	130	145	134	268	167
% of nouns	20	26	36	28	28	19	16	15
% of verbs	21	17	10	15	18	22	24	28
% of open class words	56	52	62	66	77	68	57	55
% of closed class words	44	48	38	34	23	32	43	45

Subject 2 used more nouns than verbs while the other three subjects showed greater variability in noun/verb ratios. A greater percentage of open class than closed class words was used by all four subjects.

The data from the two discourse tasks reflected variability both within and across subjects. These data support the notion that agrammatism is not a homogeneous symptom complex. Agrammatic aphasic individuals, like aphasic individuals in general, appear to comprise a heterogeneous group. The subjects do, however, present patterns consistent with some of the characterizations of agrammatism in the literature reviewed. For example, consistency was noted in these subjects' use of more open than closed class vocabulary, usually more simple than complex sentence structures, few, if any, embedded clauses within sentences, and a reduced number of grammatical sentence constructions.

Experimental Stimuli

A total of twenty active sentences of the form NP+V+NP were developed. Ten of these sentences were selected for training and the remaining ten sentences were used to assess generalization to untrained exemplars of the trained items (see Appendix C). The sentences were of equal length (five words) and they contained 20 concrete, picturable, singular nouns representing animate humans. The ten concrete, picturable regular verbs used were all simple transitives that allow a direct object NP and past tense is derived by adding /d/ or /ed/ to the stem word. The nouns and verbs used in the sentences were one or two syllable words controlled for frequency of occurrence and familiarity. Nouns ranged in frequency from 6 to 1207 and averaged 151.2 while verbs ranged from 0 to 97 and averaged 46.8 (Francis & Kucera, 1982). All nouns and verbs had a familiarity rating of 7 (1=don't know word; 7=know word and its meanings) (Nusbaum, Pisoni & Davis, 1984).

Foils for each of the 20 stimulus sentences were developed. The foil sentences were reversals of the thematic roles of the NPs in the target sentences. For example,

the target sentence, *The mother kissed the baby,* became the foil sentence, *The baby kissed the mother.* Each target and foil sentence was displayed in written form using upper and lower case black lettering on 1 1/2" by 11" strips of white posterboard. Pictures representing each target and foil sentence were displayed as black line drawings on white 5 1/2" by 8 1/2" pieces of posterboard (see Appendix D). These stimuli were used for baseline and treatment probes as well as for training. Individual sentence elements used for training the target sentences were displayed in written form with upper and lower case black lettering on 1 1/2" by 5" white index cards. Noun phrases were written on a single card (both noun and determiner) as was the element *It was* for object-cleft constructions. All other elements (*verbs, who, was, by*) appeared singly on a card.

Design

A combination multiple-baseline across subjects and behaviors (McReynolds & Kearns, 1983) was used. The multiple baseline across subjects required that successive subjects receive increasingly longer baseline periods to provide experimental control by allowing for stability of performance prior to application of treatment. This aspect of the design permitted examination of the effects of each of the treatments (comprehension and production) independently across subjects. The multiple baseline across behaviors allowed assessment of generalization across sentence types (e.g., one sentence type was held in baseline while treatment was applied to the other). When change in the untrained sentence type occurred (i.e., a level of responding at least 30% better than before treatment was applied), it was interpreted as evidence that generalization across sentence type had occurred.

When a stable baseline (i.e., level of responding within a 20% range) was obtained over two or more probes, treatment began with application of one treatment (comprehension or production) to one sentence type (passive or object-cleft) for each subject. Both comprehension and production of the sentence type being trained was

probed at the beginning of each treatment session. Generalization to untrained exemplars of the trained sentence structure as well as to the untrained sentence structure also was probed randomly during training. When criterion of 80% correct verbal production of the ten target sentences in two of three consecutive probes (or a maximum of fifteen treatment sessions) was reached, the untrained sentence type was targeted by applying the same treatment used for the first sentence type. For example, Subject 1 began with production treatment of object-cleft sentences while passive sentences were held in baseline. When criterion was reached on object-cleft sentences, production treatment of passive sentences was administered while continuing to probe object-cleft sentences for maintenance. When criterion was reached on passive sentences, treatment was discontinued and a follow-up probe was obtained two weeks post-treatment to assess maintenance of both sentence types trained and generalization effects.

This study resulted in two separate multiple baseline studies--one investigating the effects of comprehension treatment and the other investigating the effects of production treatment. The order of treatments and behaviors was counter-balanced across subjects (i.e., two subjects started with comprehension treatment and two subjects started with production treatment; passive sentences were trained first with two subjects and object-cleft sentences were trained first with two subjects). A summary of the order of treatments and behaviors by subject is presented in Table 7.

Baseline

During baseline, all of the experimental stimuli were randomly presented for elicitation of auditory verbal comprehension and verbal and written production of three sentence types (active, passive and object-cleft).

Comprehension probes:

To probe comprehension, a simulus pair (target and foil pictures) was presented three times in random order during each baseline session--once for each of the three

Table 7

Order of Treatments and Behaviors

Subject	First Behavior Trained	Treatment Method	Second Behavior Trained	Treatment Method
1	Object Cleft	Production	Passive	Production
2	Passive	Comprehension	Object Cleft	Comprehension
3	Passive	Production	Object Cleft	Production
4	Object Cleft	Comprehension	Passive	Comprehension

sentence types. Subjects were instructed to *point to* the picture that corresponded to the target sentence presented verbally for one of the three sentence types using the procedure previously outlined. Comprehension probes were always administered before production probes and responses were scored on-line as correct or incorrect within five seconds by the clinician administering the probe. Data from the comprehension probes served as a dependent variable throughout the study.

Verbal production probes:

To elicit verbal production for each of the three sentence types, a stimulus pair (written sentences and corresponding target and foil pictures for passive and object-cleft sentences; pictures only for active sentences) was presented and the modeling paradigm described previously was used. First, the clinician explained the thematic roles of the NPs in relation to the verb while pointing to the respective pictures. Next, a verbal model for one of the three sentence types was given for the foil picture. Finally, the subject was instructed to produce a sentence for the target picture. Verbal production was transcribed on-line for subsequent scoring (see Appendix A) by the clinician. Data from the verbal production probes served as a dependent variable throughout the study.

Written production probes:

To elicit written production, the previously described modeling paradigm was used. Written responses were subsequently scored by the clinician using the protocol outlined in Appendix A. Data from the written production probes served as a cross-modal generalization variable throughout the study.

Treatment

All subjects were treated individually by the author or by a masters level graduate student under the supervision of the author in the Communication Sciences and Disorders Department at Northwestern University. Treatment sessions were conducted in Northwestern University's Speech and Hearing Clinic two or three times weekly and were one and one-half to two hours in length.

Each of the ten training stimuli was presented twice during each treatment session. During each treatment trial written active sentences and corresponding pictures representing the underlying linguistic form of the target and contrasting foil sentences were randomly presented. The modeling procedure described previously for verbal production was used to elicit the target sentence. If the correct target sentence was not elicited, training was administered. One of the following step-by-step protocols was employed to derive the target surface structure being trained.

Comprehension training of passive sentences:

Step 1 - The written active sentences and foil picture were removed and the active sentence element cards corresponding to and in the order of the underlying linguistic representation of the target picture were presented (e.g., *the woman, kissed, the man*) together with the additional sentence element cards *was* and *by*. The subject was instructed to identify the verb card by pointing (e.g., *Point to the verb, the action of the sentence.*). Verbal feedback was provided for a correct response; for an incorrect response, the verb was verbally identified by the clinician while pointing to it (e.g., *The verb `kissed' is the action of the sentence.*).

Step 2 - The subject was instructed to identify the subject (*the woman)* and object (*the man*) NP cards by pointing (e.g., *Point to the person who kissed; Point to the person who was kissed*). Verbal feedback was provided for a correct response; for an incorrect response, the subject and/or object NP was verbally identified by the clinician while pointing to it (e.g., *The woman is the person who kissed; The man is the person who was kissed*).

Step 3 - The passive marker card was added to the end of the sentence next to the object NP card (*the man*) and the verb card (*kissed*) was placed next to the *was* card while explaining, *To make the new sentence `was' is added to the sentence next to `the man' along with the verb' kissed' because the man was the person who was kissed.*

Step 4 - The *by* card is added to the end of the sentence next to the verb card (*kissed*) and the subject NP card (*the woman*) is moved from sentence initial to sentence final position while explaining, *Because the man* (pointing to the object NP card) *was kissed by the woman* (pointing to the subject NP card), *`by' is added to the end of the sentence and `the woman' is moved next to it to make the correct sentence.* The target sentence was read aloud by the clinician, emphasizing the added elements (e.g., *The man <u>was</u> kissed <u>by</u> the woman*).

Step 5 - The subject was again instructed to identify the verb and the subject and object NP cards in the passive surface structure sentence as was done in steps 1 and 2 (e.g., *Point to the verb, the action of the sentence.*) Incorrect responses were corrected as was done in steps 1 and 2 and the next randomly selected stimulus pair was presented.

Comprehension training of object-cleft sentences:

Step 1 - The written active sentences and foil picture were removed and the active sentence element cards corresponding to and in the order of the underlying linguistic representation of the target picture were presented (e.g., *the woman, kissed, the man*) together with the *It was* and *who* cards. The subject was instructed to identify the verb card by pointing (e.g., *Point to the verb, the action of the sentence.*). Verbal feedback was provided for a correct response; for an incorrect response the verb was verbally identified by the clinician while pointing to the verb card (e.g., *The verb kissed is the action of the sentence.*).

Step 2 - The subject was instructed to identify the subject (*the woman*) and object (*the man*) NP cards by pointing (e.g., *Point to the person who kissed; Point to the person who was kissed.*). Verbal feedback was provided for a correct response; for an incorrect response the subject and/or object NP was verbally identified by the clinician while pointing to the corresponding card (e.g., *The woman is the person who kissed; The man is the person who was kissed).*

Step 3 - The *who* card was added to the end of the sentence next to the object NP (*the man*) while explaining, *To make the new sentence `who' is added to the sentence next to `the man'* (pointing to the object NP card) *because the man is the person who the woman kissed.*

Step 4 - The object NP (*the man*) and the *who* cards were moved to the sentence initial position and the *It was* card was added while explaining, *To make the correct sentence, these parts are moved to the beginning and `it was' is added to the beginning of the sentence.* The target sentence was read aloud by the clinician, emphasizing the added elements, (e.g., <u>*It was*</u> *the man* <u>*who*</u> *the woman kissed*).

Step 5 - The subject is again instructed to identify the verb and subject and object NP cards in the object-cleft surface structure sentence as was done in steps 1 and 2 (e.g., *Point to the verb, the action of the sentence.*). Incorrect responses were corrected as in steps 1 and 2 and the next randomly selected stimulus pair was presented.

Production training of passive sentences:

Step 1 - The written active sentences and foil picture were removed and the active sentence element cards corresponding to and in the order of the underlying linguistic representation of the target picture were presented (e.g., *the woman, kissed, the man*) together with the additional sentence element cards *was* and *by*. The verb was verbally identified by the clinician while pointing to the verb card (e.g., *The verb, the action of the sentence is kissed.*). The subject was asked to verbally identify the verb (e.g., *What is the action of the sentence?*).

Step 2 - The subject and object NPs were verbally identified while pointing to the respective sentence element cards (e.g., *The woman is the person who kissed; The man is the person who was kissed.*). The subject was asked to verbally identify the subject and object NPs (e.g., *Who kissed?/Who was kissed?*).

Step 3 - The passive marker card (*was*) was added to the end of the sentence next to the object NP (*the man*) and the verb card (*kissed*) was moved next to *was* while explaining, *To make the new sentence `was' is added next to `the man' along with the verb `kissed' because the man was kissed.* The subject was instructed to read/repeat the sentence in the order it now appeared on the cards (e.g., *the woman, the man, was, kissed*).

Step 4 - The *by* card was added next to the verb card and the subject NP card (*the woman*) was moved to sentence final position while explaining, *To make the correct sentence, we add `by' next to the verb `kissed' and move `the woman' next to `by' because the man was kissed by the woman.* The subject is instructed to read/repeat the target sentence (e.g., *the man was kissed by the woman*).

Step 5 - Sentence element cards were re-arranged in the active form order (as in step 1) and the subject was instructed to move them as in steps 3 and 4 to form the target sentence. Assistance was provided as necessary. When the correct sentence was formed, the subject was again instructed to read/repeat it before proceeding with the next randomly selected stimulus pair.

Production training of object-cleft sentences:

Step 1 - The written active sentences and foil picture were removed and the active sentence element cards corresponding to and in the order of the underlying linguistic representation of the target picture were presented (e.g., *the woman, kissed, the man*) together with the additional sentence element cards *It was* and *who*. The verb was verbally identified by the clinician while pointing to the verb card (e.g., *The verb, the action of the sentence is kissed.*). The subject was asked to verbally identify the verb (e.g., *What is the action of the sentence?*).

Step 2 - The subject and object NPs were verbally identified while pointing to the respective sentence element cards (e.g., *The woman is the person who kissed; The*

man is the person who was kissed.). The subject was asked to verbally identify the subject and object NPs (e.g., *Who kissed?/Who was kissed?*).

Step 3 - The *who* card was added next to the object NP card (*the man*) while explaining, *To make the new sentence, we add `who' next to `the man' because the man is the person who the woman kissed.* The subject was instructed to read/repeat the sentence in the order it now appeared on the cards (e.g., *the woman kissed the man who*).

Step 4 - The object NP (*the man*) and the *who* cards were moved to the sentence initial position and the *It was* card was added to sentence initial position while explaining, *To make the correct sentence, these parts are moved to the beginning and `it was' is added to the beginning of the sentence because it was the man who the woman kissed.* The subject was instructed to read/repeat the target sentence (e.g., *It was the man who the woman kissed*).

Step 5 - Sentence element cards were re-arranged in the active form order (as in step 1) and the subject was instructed to move them as in steps 3 and 4 to form the target sentence. Assistance was provided as necessary. When the correct sentence was formed, the subject was again instructed to read/repeat it before proceeding with the next randomly selected stimulus pair.

The comprehension training protocols did not demand any overt verbal response from the subject while the production training protocols did not demand any overt comprehension response, (i.e., no pointing response to indicate understanding of sentence elements identified by the clinician). Protocols for comprehension and production training for both sentence types involved identification of the verb and thematic roles associated with it (steps 1 and 2) as well as either demonstration or comprehension of the linguistic movement and addition of elements necessary to derive the target structure (steps 3 and 4). The primary difference between the comprehension and production training (other than overt comprehension response versus overt

production response) was in the final step in the training procedures. The comprehension protocols required demonstration of understanding of the thematic roles of the subject and object NPs in the surface structure of the target sentence after they were moved out of canonical position; whereas, the production protocols required demonstration of how to move and add sentence elements in order to form the surface structure of the target sentence.

Treatment Probes

Probes were randomly administered in the same manner as during baseline for auditory verbal comprehension and verbal production of trained and untrained passive and object-cleft sentences. Consistent with baseline probe procedures, comprehension probes were always administered before production probes. The ten training items and the ten untrained exemplars for the sentence type being targeted were probed for both comprehension and production at the beginning of every treatment session. These twenty sentences also were probed for comprehension and production of the untrained sentence type once weekly. Responses were scored as during baseline and data from the comprehension and production probes served as the dependent variables throughout the study.

Outcome Measures

The *WAB* and the *PCBA* were re-administered post-treatment. The experimental stimuli were probed in the same manner as during baseline at all treatment phase changes to assess changes in auditory verbal comprehension and verbal production of untrained active sentences as well as written production of all three sentence types (active, passive and object-cleft). These probes were analyzed for cross-modal generalization and generalization to a less complex (active) untrained linguistic structure. Two narrative language samples and two conversation samples were obtained at all treatment phase changes in the same manner as previously described. These discourse samples were analyzed for generalization to verbal production tasks not

targeted in treatment using the same procedures as were used prior to administration of treatment.

CHAPTER III

RESULTS AND DISCUSSION

This study was designed to examine the effects of two treatment methods (comprehension and production training) on the acquisition and generalization of two sentence constructions (passive and object-cleft) in agrammatic aphasic subjects. Four subjects were trained to comprehend or produce both sentence constructions using either comprehension or production training.

A single subject, multiple baseline design across subjects and behaviors was used to evaluate the effects of treatment. The phases of the design included (a) baseline, (b) application of either comprehension or production training to either passive or object-cleft sentences, and (c) application of either comprehension or production training to the remaining sentence type. This design allowed each of the treatment methods to be examined independently across subjects as well as within each subject.

The results of the study are presented relative to the experimental questions posed in Chapter I. First, data regarding acquisition and generalization within and across sentence types (active, passive, and object-cleft) are discussed for each subject. That is, the extent to which production training improved sentence production on probe tasks and comprehension training increased comprehension on comprehension probes was examined. Secondly, generalization questions are addressed, including (a) cross-modal generalization from production training to comprehension, from comprehension training to production, and from both training methods to written production, (b)

generalization to other verbal production tasks, and (c) generalization to pre- and post-test measures. Finally, reliability data are presented.

Acquisition and Generalization Within and Across Sentence Types

Experimental questions one through three in Chapter I focused on the effects of linguistic-specific comprehension and production treatment on comprehension and production of reversible active, passive and object-cleft sentence forms and generalization within and across sentence types. Acquisition and generalization effects were ascertained by examining the subjects' responding to daily comprehension and production probes of training items associated with the sentence type being trained with one of the treatment methods. Additional generalization effects were determined by evaluating the subjects' responding on weekly probes of untrained exemplars of the sentence type being trained and of the untrained sentence type, as well as probes of the untrained active sentence at treatment phase changes. These data are presented individually for each subject.

Acquisition and generalization effects of both treatment methods were examined by comparing baseline responding with responding during the treatment phases. For example, comprehension performance during baseline was compared to comprehension performance during treatment phases for the two subjects who received comprehension treatment. Conversely, for the two subjects who received production treatment, production performance during baseline was compared to production performance during treatment phases. Subjects 1 and 3 received production treatment and Subjects 2 and 4 received comprehension treatment. Object-cleft sentences were trained first for Subjects 1 and 4 and passive sentences were trained first for Subjects 2 and 3.

Subject 1

Data indicating the effects of training first object-cleft and then passive sentences using linguistic-specific treatment are shown in Figure 5. Specifically, these

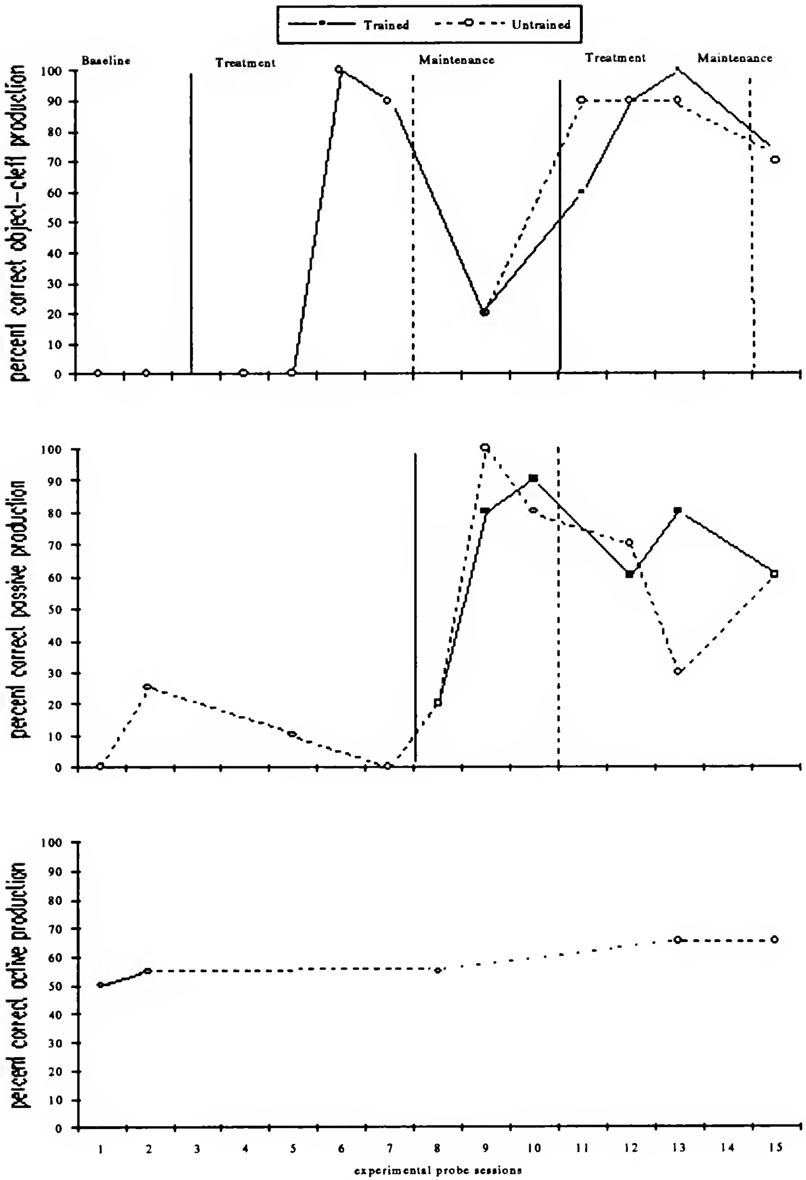


Figure 5. Verbal production of active, passive, and object-cleft sentences for Subject 1 during baseline, production treatment and maintenance phases of the study

data show the effect of production treatment on verbal production of trained and untrained sentences. Two baseline probes were administered prior to introducing production treatment to object-cleft sentences. Examination of the data indicated that the subject's performance in baseline was at 0% accuracy for object-cleft sentences. When treatment was initiated, the subject reached criterion (80% correct production on two consecutive probes) within four sessions.

During this training, production of passive sentences ranged from 0% to 25% accuracy and remained unchanged during the baseline phase. With application of production treatment, the subject again reached criterion on passive sentences within four sessions in the second treatment phase. Because the subject's performance on object-cleft sentences declined during training of passives, production treatment was re-applied to object-cleft sentences following training of passives for three more sessions until the behavior again reached criterion.

The subject acquired the ability to produce both trained and untrained sentences during the two treatment phases with almost identical accuracy. These data indicated that production training was effective in facilitating acquisition and generalization as predicted, within but not across sentence types.

Data indicating the subject's verbal production of active sentences are also shown in Figure 5. These data showed that the subject produced active sentences at about the same accuracy level (50% to 60%) throughout the study. That is, no generalization to less linguistically complex active sentences was noted.

Subject 2

Data indicating the effects of training first passive and then object-cleft sentences using linguistic-specific treatment are shown in Figure 6. Specifically, these data show the effect of comprehension treatment on auditory verbal comprehension of trained and untrained sentences. Four baseline probes were administered prior to

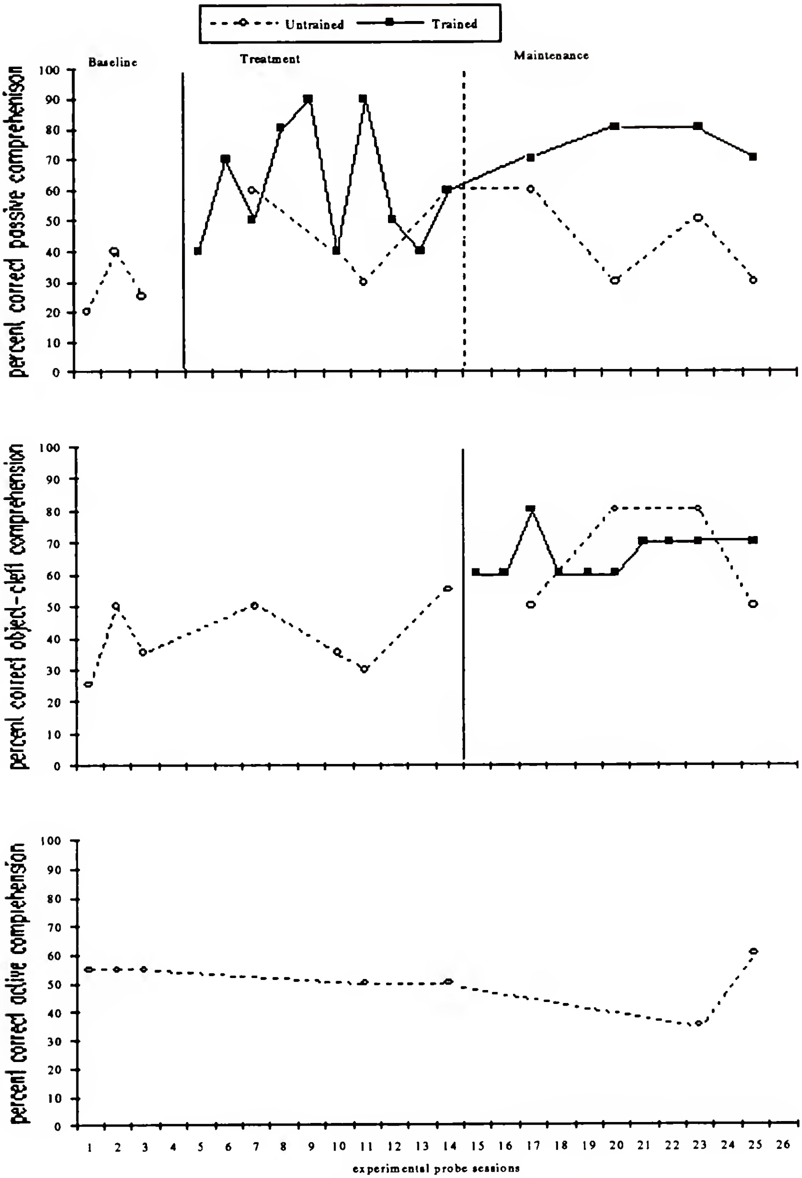


Figure 6. Auditory verbal comprehension of active, passive, and object-cleft sentences for Subject 2 during baseline, comprehension treatment and maintenance phases of the study

introducing comprehension training to passive sentences. Examination of the data indicated that the subject's comprehension of passive sentences during baseline was below chance level, ranging from 20% to 40% accuracy. Comprehension treatment was initiated on passive sentences and the subject reached criterion (80% correct production in two consecutive sessions) within nine sessions. The subject's comprehension of trained passive sentences during this treatment phase gradually increased from below chance level responding to performance that was at or above chance level (50% to 90% accurate). Performance on untrained passive sentences was not as high (30% to 60% accuracy) as on trained sentences.

During treatment of passive sentences, the subject's comprehension of object-cleft sentences was at or below chance level, ranging from 25% to 55% accuracy. With application of comprehension training, production criterion on object-cleft sentences was reached within 4 sessions but training continued for five additional sessions in order to allow comprehension responding (which ranged from 60% to 80% and 50% to 80% accuracy for trained and untrained sentences, respectively) to stabilize above chance level.

This subject demonstrated improved comprehension of trained and untrained sentences for both sentence types during the two treatment phases. Comprehension of untrained passive sentences was not as accurate as trained sentences throughout the study. These data indicated that comprehension training was effective in facilitating increased comprehension and generalization as predicted, within but not across sentence types.

Data indicating comprehension of active sentences are also shown in Figure 6. These data showed that the subject's comprehension of active sentences remained at or only slightly above chance level (35% to 55% accuracy) throughout the study, resulting in no apparent generalization to active sentence comprehension. These data are

somewhat puzzling in view of the studies that have documented less difficulty comprehending canonical than noncanonical sentence types (Caplan et al., 1985; Caplan & Futter, 1986; Caramazza & Zurif, 1976; Caramazza et al., 1978; Gallaher & Canter, 1982; Grodzinsky, 1984/1986/1990; Heeschen, 1980; Pierce & Wagner, 1985; Schwartz et al., 1980; Sherman & Schweikert, 1989). Clearly, this subject was not employing a canonical approach to linearly assign NP relationships to the verb during active sentence comprehension. It seems possible that this subject's comprehension deficit may lie in his difficulty understanding D-structure relationships, thus it is remarkable that, in spite of his deficit, his comprehension of noncanonical sentences improved with training.

Subject 3

Data indicating the effects of training first passive and then object-cleft sentences using linguistic-specific treatment are shown in Figure 7. Specifically, these data show the effect of production treatment on verbal production of trained and untrained sentences. Two baseline probes were administered prior to introducing production training to passive sentences. Examination of the data indicated that the subject's performance on passive sentences was 0% accurate during baseline. Production treatment was initiated and the subject achieved criterion within three sessions, although training continued for two additional sessions to allow generalization to comprehension to occur.

During training of passive sentences, production of object-cleft sentences remained unchanged at 0% accuracy. With application of production training to object-cleft sentences, the subject again reached criterion within three sessions and training continued for two additional sessions to allow for generalization to occur.

The subject acquired the ability to produce both trained and untrained sentences during the two treatment phases with almost identical accuracy. These data indicated

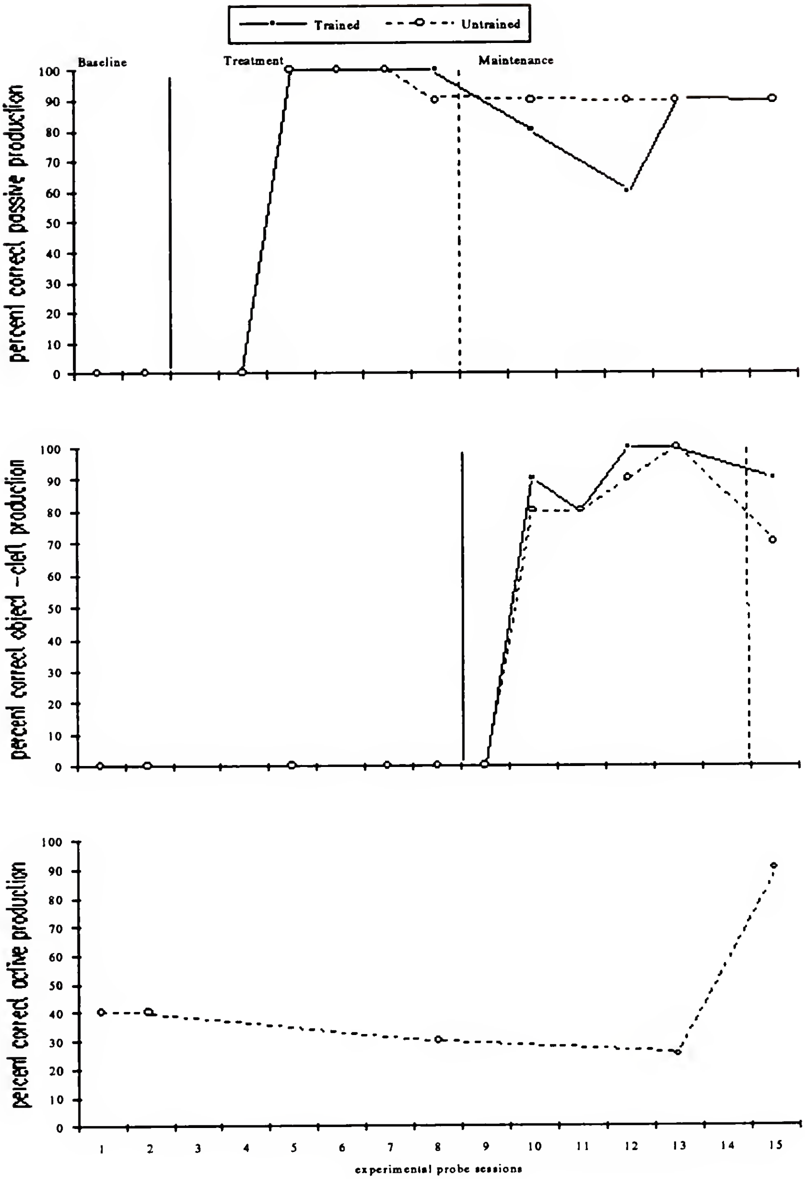


Figure 7. Verbal production of active, passive and object-cleft sentences for Subject 3 during baseline, production treatment and maintenance phases of the study

that production training was effective in facilitating acquisition and generalization as predicted, within but not across sentence types.

Figure 7 also shows the subject's verbal production of active sentences. Examination of these data indicated that the subject's performance decreased slightly from baseline levels of 40% accuracy to 30% following treatment; however, his performance increased to 90% accuracy on a follow-up probe two weeks post-treatment, indicating some influence of training on less complex active sentences.

Subject 4

Data indicating the effects of training first object-cleft and then passive sentences using linguistic-specific treatment are shown in Figure 8. Specifically, these data show the effect of comprehension treatment on auditory verbal comprehension of trained and untrained sentences. Two baseline probes were administered prior to introducing comprehension treatment to object-cleft sentences. Examination of the data indicated the subject's comprehension of object-cleft sentences ranged from 40% to 60% accuracy during baseline. Comprehension treatment was initiated and the subject reached criterion (80% correct production in two consecutive sessions) within seven sessions. Comprehension of trained object-cleft sentences initially declined and then gradually increased to above chance level for three consecutive sessions (70% to 90% accuracy). Untrained object-cleft sentence comprehension showed a corresponding initial decline and subsequent gradual increase to 70% accuracy.

Passive sentence comprehension during training of object-cleft sentences ranged from 40% to 60% accuracy. With application of comprehension training, criterion for passive sentence production was reached within eight sessions. Comprehension of trained passive sentences initially decreased and then gradually increased to 80% accuracy for two out of three consecutive probes during the second treatment phase. The subject's comprehension of untrained passive sentences showed a corresponding

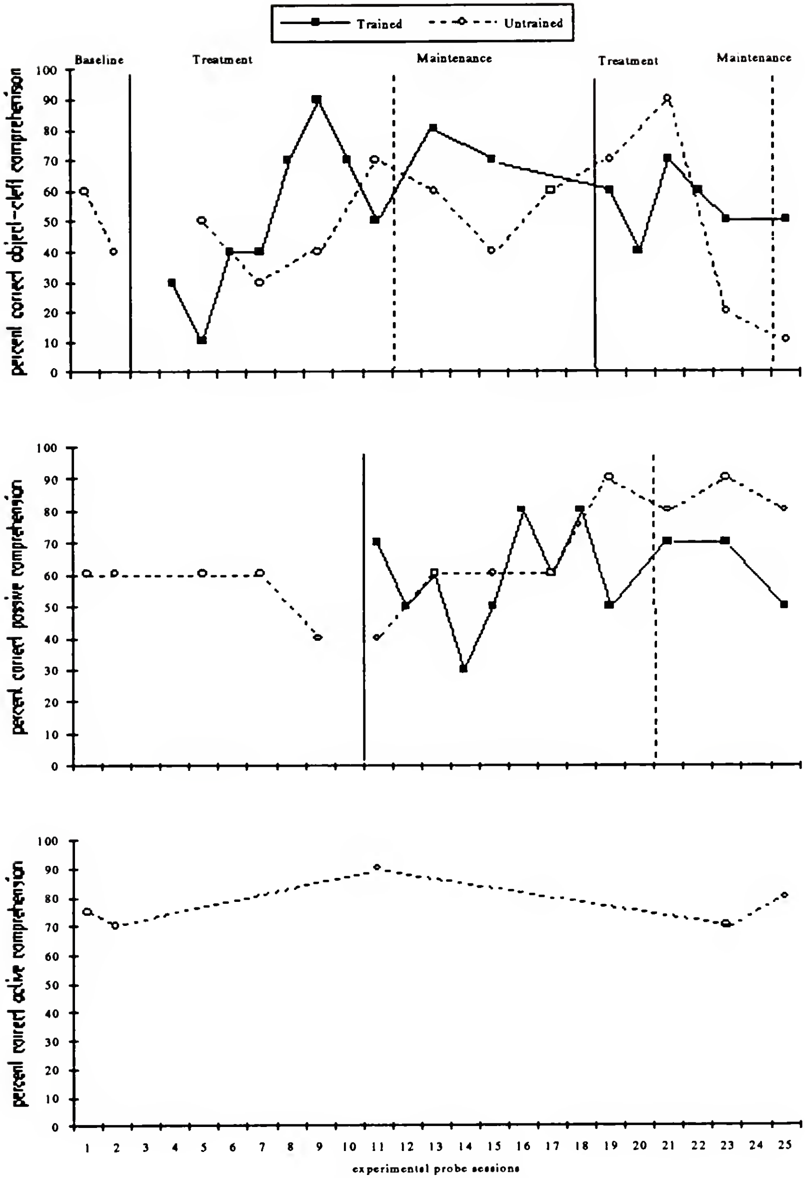


Figure 8. Auditory verbal comprehension of active, passive, and object-cleft sentences for Subject 4 during baseline, comprehension treatment and maintenance phases of the study

gradual increase to 90% accuracy during this phase. Because production of object-cleft sentences declined during training of passives, comprehension training was re-applied to object-cleft sentences for four additional sessions until production criterion again was reached. During this third treatment phase, comprehension of trained object-cleft sentences again reflected an initial decline and then a gradual increase to above chance level responding in two of three consecutive probes. In contrast, untrained object-cleft sentence comprehension initially increased to 90% accuracy and then declined to 20% accuracy. Passive sentence comprehension was maintained at above chance levels for both trained and untrained sentences during re-training of object-cleft sentences. These data indicated that, although there was variability in comprehension performance on trained and untrained sentences for both sentence types, comprehension training was effective in facilitating acquisition and generalization as predicted, within but not across sentence types.

Subject 4's comprehension of active sentences also is represented in Figure 8. These data indicated that, like Subject 2, her comprehension of active sentences remained essentially unchanged throughout the study, thus, she showed no apparent generalization to active sentences. However, unlike Subject 2, this subject's comprehension of active sentences ranged from 70% to 90% accuracy--well above chance level.

Summary of Acquisition and Generalization Within and Across Sentence Types

Results of this study indicated that both linguistic-specific comprehension and production training were effective in facilitating acquisition and generalization as predicted--within but not across sentences types that involve different kinds of linguistic movement. That is, when subjects began to acquire the ability to produce or comprehend the target sentence constructions, a similar pattern of acquisition was observed for untrained exemplars of the target sentences. But, while one sentence type

was being trained, no change was noted in the subjects' ability to produce or comprehend the yet untrained sentence construction. These data suggested that successful training of a sufficient number of items (ten in this case) of a specified linguistic structure will result in generalization to untrained items of the same linguistic structure. This finding could be interpreted as evidence that once a linguistic movement rule has been learned, it can be applied to untrained sentences that use that same type of movement. The results of the present study were consistent with the results of previous treatment studies that resulted in generalization within sentence type but failed to result in generalization across sentence forms that involve different processing routines to derive S-structure from the underlying representation of a sentence (Straw, 1992; Thompson et al., 1993; Thompson et al., 1994).

These acquisition and generalization effects were noted regardless of which treatment approach was used or which sentence type was trained first. The only differences between the subjects in the present study were in the number of sessions required to reach criterion for verbal production and the fact that two subjects needed to be re-trained on the first sentence type trained because their production performance declined during training of the second sentence type. The subjects who received production training required fewer sessions (three to four) to reach criterion for verbal production than the subjects who received comprehension training (four to nine sessions). This result would be expected due to the nature of the response mode required by the training protocols, i.e., production treatment provided the opportunity for verbal practice during training while comprehension treatment did not. However, the relative effects of the two treatments on verbal production could not be derived from the data in the present study due to design constraints. That is, the superiority of one or the other of the treatment methods might have been demonstrated more clearly if the ATD had been implemented to compare the effects of the treatment methods as

originally planned. Because all subjects achieved production criterion with both treatment methods on both sentence types, the ATD phase (i.e., application of the alternate treatment if criterion was not achieved with the first treatment) was not necessary.

Of interest is the fact that three of the four subjects did not show generalization to the less linguistically complex untrained active sentence. Subject 1 overgeneralized the production treatment effect (i.e., she tended to produce the more complex sentence type being trained instead of the corresponding active sentences). Subject 3 showed generalization to the untrained active sentences on the follow-up probe; however, following each production treatment phase, he also overgeneralized in a manner similar to Subject 1. Neither Subject 2 nor 4 showed generalization to active sentence comprehension with comprehension training.

Generalization

Experimental questions four and five in Chapter I focused on cross-modal generalization and generalization to other language tasks. These generalization effects were examined for (a) verbal production, (b) auditory verbal comprehension, (c) written production, (d) narrative and conversational discourse, and (e) pre- and post-treatment measures. The effects of treatment on verbal and written production and auditory verbal comprehension were determined by evaluating the subjects' responding on probes of the experimental stimuli. Treatment effects on other verbal production tasks were determined by analyzing the discourse samples obtained during baseline and at treatment phase changes. Finally, generalization in a more general sense was examined by comparing the subjects' post-treatment scores to pre-treatment scores on two tests that were administered (the *WAB* and the *PCBA*). These dimensions of generalization are discussed individually for each subject.

Cross-modal Generalization from Production Treatment to Auditory Verbal Comprehension and from Comprehension Treatment to Verbal Production

At the beginning of each treatment session, the experimental stimuli were probed in the same manner as during baseline to assess the subjects' ability to produce and comprehend the items being trained as well as untrained exemplars and the untrained sentence type. Active sentence production and comprehension was probed only at treatment phase changes. This probing procedure was used throughout the study with each of the four subjects.

Subject 1

Figure 9 shows the effect of production treatment on comprehension of active, passive, and object- cleft sentences for Subject 1. Examination of these data indicated that the subject's performance ranged from 50% to 75% accuracy for active sentences, 15% to 40% for object-cleft sentences, and 40% to 55% for passive sentences during baseline (chance level=50%). During the first treatment phase (production training of object-cleft sentences), object-cleft sentence comprehension gradually increased from 20% to 40% accuracy but remained below the level of chance as during baseline. Passive sentence comprehension also increased slightly to between 70% and-80% accuracy during training of object-cleft sentences.

During the second treatment phase (production training of passive sentences), comprehension of passive sentences initially declined to below chance level and subsequently gradually increased to 60% accuracy. Comprehension performance on object-cleft sentences gradually declined to below chance levels of 15% to 30% accuracy during training of passive sentences.

A third treatment phase (re-training of object-cleft sentences) was initiated due to the decline in the first behavior trained. Object-cleft sentence comprehension

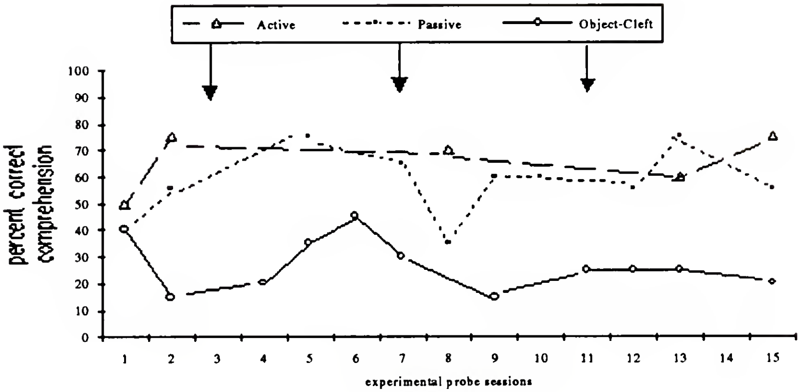


Figure 9. Percent correct responding on auditory verbal comprehension of active, passive and object-cleft sentences for Subject 1 during baseline, production treatment and maintenance phases of the study. Arrows indicate sessions in which training on object-cleft, passive, and object-cleft sentences was introduced, respectively.

remained below the level of chance during this phase while comprehension of passive sentences showed a further increase to 75% accuracy.

Throughout the study, relatively little change was noted in comprehension of active sentences which ranged from 50% to 80% accuracy. These data indicated that production training did have some influence on comprehension of the trained sentence types but not the untrained sentence type.

Subject 2

Figure 10 shows the effect of comprehension treatment on production of active, passive, and object- cleft sentences for Subject 2. Examination of the data indicated that the subject's production of passive and object-cleft sentences was 0% accurate during baseline while active sentence production ranged from 20% to 95% accuracy. Comprehension treatment of passive sentences was initiated in the first treatment phase during which an increase in passive sentence comprehension was noted concomitant with an increase in passive sentence production.

During training of passive sentences, production of object-cleft sentences remained at 0% accuracy and active sentence production decline to 0% accuracy. When comprehension training of object-cleft sentences was initiated in the second treatment phase, an increase in object-cleft comprehension was noted concomitant with increased object-cleft sentence production. The subject maintained passive sentence production performance during the second treatment phase while active sentence production increased slightly to 20% accuracy following this phase.

These data indicated that comprehension training resulted in generalization to verbal production of the trained sentence types, but not the untrained active sentence. It is important to note the reason generalization did not occur to less linguistically complex active sentences, i.e., the subject tended to produce whichever sentence type was being trained instead of the active sentence being elicited.

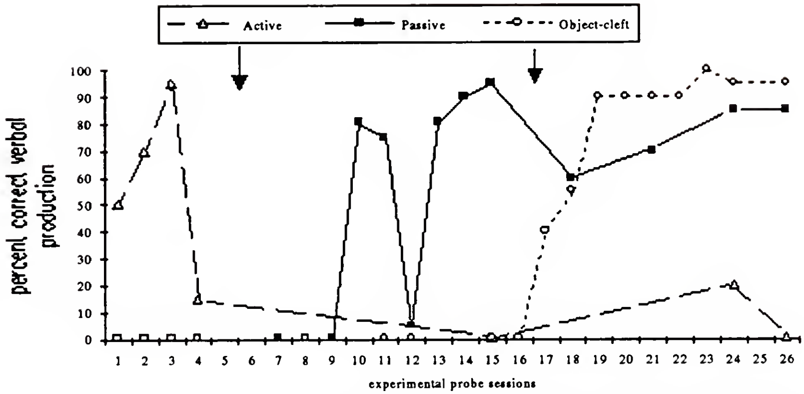


Figure 10. Percent correct responding on verbal production of active, passive, and object-cleft sentences for Subject 2 during baseline, comprehension treatment and maintenances phases of the study. Arrows indicate sessions in which training on passive and object-cleft sentences was introduced, respectively.

Subject 3

Figure 11 shows the effect on comprehension of active, passive, and object-cleft sentences for Subject 3 during production treatment. Examination of the data indicated that the subject's comprehension during baseline was 45% to 50% accurate for passive sentences, 65% accurate for object-cleft sentences, and 45-80% accurate for active sentences (chance level=50%). During passive sentence training, comprehension of passive sentences was initially at chance level, subsequently dropped below chance (25% accurate) and gradually increased to 65% accuracy. Object-cleft sentence comprehension also gradually increased to 95% accuracy during passive sentence training while comprehension of active sentences showed little change from baseline levels of responding.

Interestingly, during object-cleft sentence training in the second treatment phase, the subject's comprehension of both object-cleft and passive sentences gradually declined to below chance levels while active sentence comprehension again reflected little change from baseline. However, the subject's comprehension of active sentences increased to 90% accuracy on the follow-up probe taken two weeks post-treatment. These data indicated that production training had some, but limited, influence on comprehension of both trained and untrained sentence types.

Subject 4

Figure 12 shows the effect on production of active, passive and object- cleft sentences for Subject 4 during comprehension treatment. Examination of the data indicated that the subject's production of active sentences was 25% to 35% accurate and production of passive and object-cleft sentences was 0% accurate during baseline. The subject received training on object-cleft sentences during the first treatment phase and showed an increase in object-cleft sentence production that corresponded to increased comprehension.

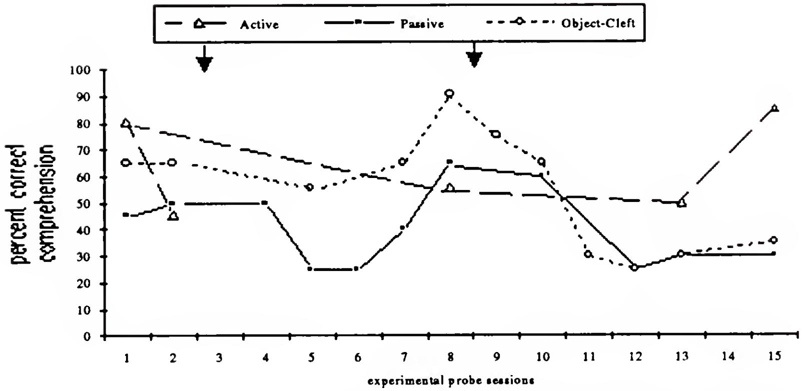


Figure 11. Percent correct responding on auditory verbal comprehension of active, passive and object-cleft sentences for Subject 3 during baseline, production treatment and maintenance phases of the study. Arrows indicate sessions in which training on passive and object-cleft sentences was introduced, respectively.

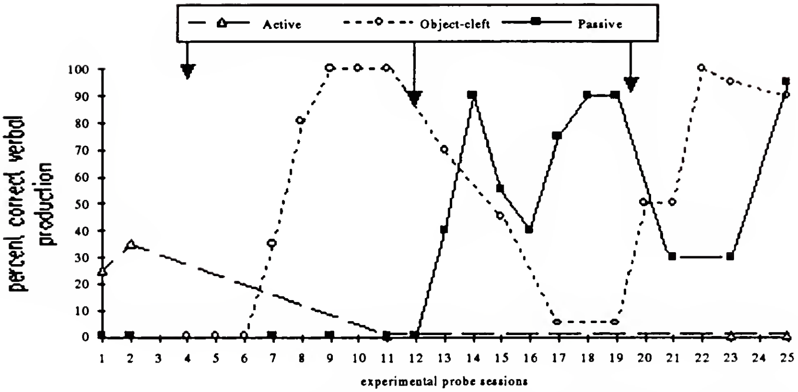


Figure 12. Percent correct responding on verbal production of active, passive, and object-cleft sentences for Subject 4 during baseline, comprehension treatment and maintenance phases of the study. Arrows indicate sessions in which training on object-cleft, passive, and object-cleft sentences was introduced, respectively.

Production of passive sentences remained unchanged at 0% accuracy and production of active sentences declined during the first treatment phase. When training of passive sentences was initiated in the second treatment phase, the subject again showed concomitant increases in both passive sentence comprehension and production. Production of object-cleft sentences declined during passive sentence training, thus treatment was re-applied and again resulted in corresponding increases in object-cleft comprehension and production. Active sentence production remained at 0% accuracy during all three treatment phases.

These data indicated that comprehension treatment was effective in facilitating generalization to verbal production of both sentence types trained, but not to the untrained active sentence. This subject demonstrated a pattern similar to Subject 2, in that she also produced whichever sentence type was being trained rather than the corresponding active sentence

In summary, these data indicated that both comprehension and production training resulted in generalization to the sentence types trained. However, the effects observed with production treatment were neither as clear nor as robust as the generalization patterns for the subjects who received comprehension treatment. For example, the two subjects who received comprehension treatment showed corresponding increases in production performance during training only on the sentence type being trained, i.e., within but not across sentences types that require different types of linguistic movement. In contrast, the two subject who received production treatment showed increased comprehension performance during training both within and across sentence types in some treatment phases and decreased comprehension performance both within and across sentence types in others. This latter result is difficult to interpret other than to note that overall comprehension performance of all

subjects is consistent with the results of studies that have documented comprehension difficulty for these noncanonical sentence types (Caplan et al., 1985; Caplan & Futter, 1986; Caramazza & Zurif, 1976; Caramazza et al., 1978; Gallaher & Canter, 1982; Grodzinsky, 1984/1986/1990; Heeschen, 1980; Pierce & Wagner, 1985; Schwartz et al., 1980; Sherman & Schweikert, 1989). The variable comprehension performance observed may have reflected the influence of memory--storage capacity for verbal material in agrammatic aphasic subjects may be limited. Attentional resources required for the production and comprehension probes also differed. The production task required the subjects' attention only for the target picture while formulating a verbal response. In contrast, the comprehension task required attention to both the target and foil pictures while listening to the stimulus target sentence before choosing a match.

The fact that the subjects were never provided with feedback regarding correct or incorrect choices when presented with both target and foil pictures also might partially account for the less robust influence of both treatment methods on comprehension. That is, even during the comprehension training protocol, the subjects' correct or incorrect identification of thematic roles of the NPs was trained and reinforced for the target picture only. Thus, when presented with both target and foil pictures during comprehension probes, the subjects had no prior feedback upon which to rely for correct interpretation relative to which picture corresponded to the target sentence presented auditorally. In the case of the subjects who received production training, they were not provided with any feedback relative to the accuracy of comprehension responses at any time during the study. It is not surprising then that the subjects who received comprehension treatment showed a clearer pattern of increased production and comprehension that corresponded to the sentence type being trained than the subjects who received production treatment.

On the face of it, the influence on both comprehension and production that occurred with comprehension training seems to endorse Schuell and colleagues' (Darley, 1982; Eisenson, 1984; Schuell et al., 1964) treatment principles that imply that training comprehension will improve production. These data also appear to support the claims of other studies that purported production was improved with comprehension approaches to training (Byng, 1988; Davis & Tan, 1987; Jones, 1986; LeDorze et al., 1991; Saffran et al., 1992). It is true that comprehension training did result in both improvement of comprehension and generalization to production. However, production training also resulted in acquisition of production and some improvement in comprehension. In addition, even when comprehension was at or below chance level, the subjects were able to correctly produce the sentence types being trained. Thus, it appears that comprehension is not always necessary for correct production. The point made in Chapter I regarding word order errors being more characteristic of asyntactic comprehension than agrammatic production may apply here. This dichotomy seems to suggest that grammatical deficits are indeed realized in unique ways in the receptive and expressive modalities. This finding is consistent with Martin et al. (1989) who found little relation between production on discourse tasks and comprehension performance on sentence-picture matching tasks.

The dissociations between two of the four subjects' comprehension and production performance are inconsistent with Zurif et als.' (1972) suggestion that agrammatism reflects a language rather than a performance limitation. These generalization results shed some light on the relation between sentence comprehension and production, in that accurate comprehension does not appear to be a prerequisite for accurate production. The question regarding whether comprehension underlies production or whether these processes share the same processing mechanisms remains unanswered.

Cross-modal Generalization to Written Production

The experimental stimuli were probed in the same manner as during baseline at treatment phase changes and post-treatment to assess written production of all three sentence types (active, passive, and object-cleft). This probing procedure was used throughout the study with each of the four subjects.

Subject 1

Figure 13 shows written production performance for active, passive, and object-cleft sentences for Subject 1. Examination of the data indicated that the subject wrote passive and object-cleft sentences with 0% success and active sentences with 40% success in baseline. Following production training of object-cleft sentences in treatment phase one, the subject wrote object-cleft sentences with 85% accuracy and active sentences with 70% accuracy while passive sentences remained at 0% accuracy.

Following production training of passive sentences in the second treatment phase, the subject's ability to write passive sentences increased to 10% accuracy, active sentences remained at 70% accuracy, and object-cleft sentences declined to 40% accuracy. All three sentence types increased on the follow-up probe taken two weeks post-treatment to 100% accuracy on active sentences, 80% accuracy on passive sentences, and 70% accuracy on object-cleft sentences.

These performance levels were all substantially above baseline levels of responding, thus the data indicated that production training resulted in generalization to writing. As was expected, generalization occurred within but not across the sentence types that involve different types of linguistic movement. Improved written production of active sentences also occurred following the treatment phases.

Subject 2

Figure 14 shows written production performance for active, passive, and object-cleft sentences for Subject 2. Examination of the data indicated that the

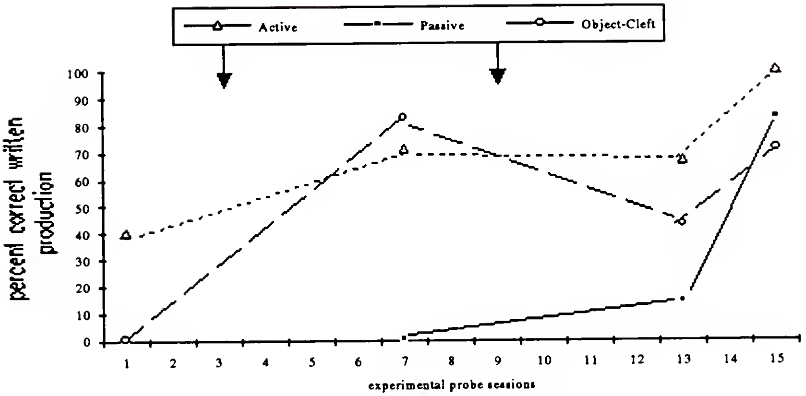


Figure 13. Percent correct responding on written production of active, passive and object-cleft sentences for Subject 1 during baseline, production treatment and maintenance phases of the study. Arrows indicate sessions in which training on object-cleft and passive sentences was introduced, respectively.

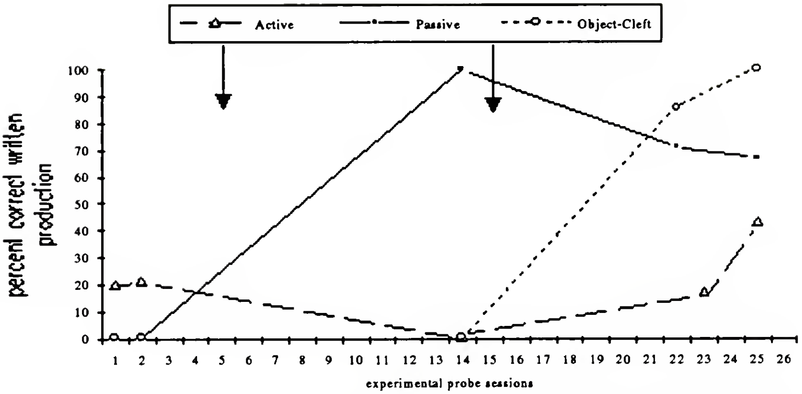


Figure 14. Percent correct written production of active, passive and object-cleft sentences for Subject 2 during baseline, comprehension treatment and maintenance phases of the study. Arrows indicate sessions in which training on passive and object-cleft sentences was introduced, respectively.

subject's ability to write object-cleft and passive sentences was 0% in baseline while active sentences were 20% accurate. Following comprehension training of passive sentences in the first treatment phase, the subject wrote passive sentences with 100% accuracy. Written production of object-cleft sentences remained unchanged from baseline and active sentences declined to 0% accuracy at the end of the first treatment phase.

Comprehension training of object-cleft sentences during the second treatment phase resulted in 90% correct written production of object-cleft sentences. Performance declined to 70% on passive sentences and increased to 15% on active sentences following object-cleft training.

Written production of the sentence types trained was maintained at levels substantially above baseline on the follow-up probe two weeks post-treatment while active sentences increased to 40% accuracy. These data indicated that comprehension training was effective in facilitating generalization within but not across the trained sentence types with some improvement in writing untrained active sentences.

Subject 3

Figure 15 shows written production performance for active, passive, and object-cleft sentences for Subject 3. Examination of the data indicated that production of passive and object-cleft sentences was 0% accurate while active sentences were 20% accurate during baseline. Production training of passive sentences during treatment phase one resulted in increased performance in writing both active and passive sentences (100% accuracy) while written production of object-cleft sentences remained at 0% accuracy.

After the second treatment phase (production training of object-cleft sentences), written production of object-cleft sentences increased to 60% accuracy and active and passive sentences remained at 100% accuracy. Written production of active and

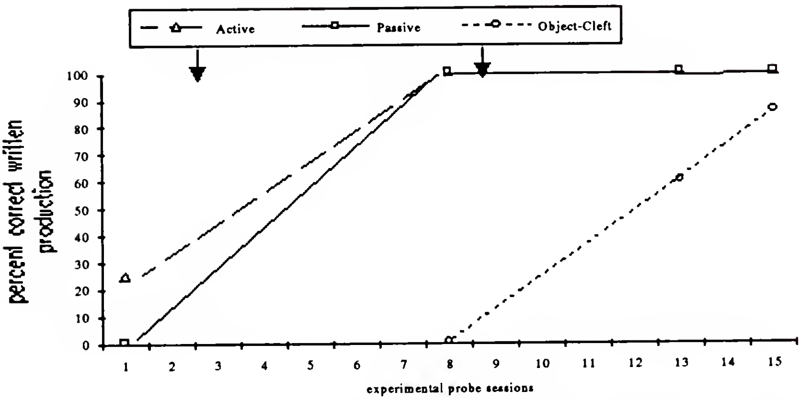


Figure 15. Percent correct responding on written production of active, passive and object-cleft sentences for Subject 3 during baseline, production treatment and maintenance phases of the study. Arrows indicate sessions in which training on passive and object-cleft sentences was introduced, respectively.

passive sentences was maintained at 100% accuracy and object-cleft sentences increased to 85% accuracy when a follow-up probes was done two weeks post-treatment. These data indicated that, as with Subject 1, production training was effective in facilitating generalization to written production within, but not across, the sentence types trained as well as to the untrained active sentence.

Subject 4

Figure 16 shows written production performance for active, passive, and object-cleft sentences for Subject 4. Examination of the data indicated that production of both sentence types trained was at 0% accuracy while active sentences were 10% accurate during baseline. After the first treatment phase (comprehension training of object-cleft sentences), written production of object-cleft sentences increased to 70% accuracy while passive sentences remained at 0% accuracy and active sentences declined to 0% accuracy.

Comprehension training of passive sentences during treatment phase two resulted in an increase in written production of passive sentences to 85% accuracy while object-cleft sentences declined to 0%. Written production of active sentences remained at 0% accuracy following passive sentence training and on the follow-up probe two weeks post-treatment. Performance on passive and object-cleft sentences on the follow-up probe was 75% and 85% accurate, respectively. These data indicated that comprehension treatment was effective in facilitating improved written production of the sentence types trained within but not across the sentence types, but not of the untrained active sentence.

In summary, both comprehension and production training were effective in facilitating cross-modal generalization to written production within but not across the sentence types trained in all four subjects. Generalization to untrained active

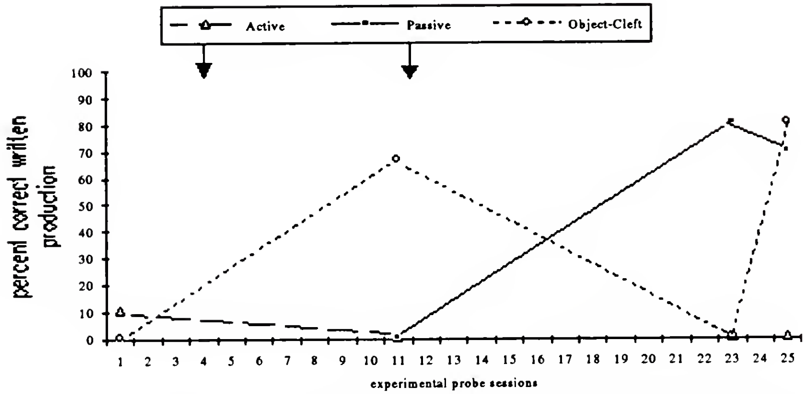


Figure 16. Percent correct responding on written production of active, passive and object-cleft sentences for Subject 4 during baseline, comprehension treatment and maintenance phases of the study. Arrows indicate sessions in which training on object-cleft and passive sentences was introduced, respectively.

sentences also was observed in three of the four subjects, two of whom received production training. Subject 4, who received comprehension treatment, did not show this generalization pattern--she tended to write whichever sentence type was being trained instead of the corresponding active sentence. That is, this subject's written production performance was similar to her verbal production performance. This latter finding is interesting in terms of Gallaher and Canter's (1982) study which found similar performance patterns with written and verbal stimuli in receptive language tasks (i.e., reading and listening comprehension) in their agrammatic aphasic subjects. Caramazza and Hillis (1989) also found similar errors in the verbal and written production of their agrammatic aphasic subject. The results of these studies as well as the present study suggest that the process by which sentences are produced is similar for both verbal and written production, if the graphemic output lexicon is accessible, which it must have been for the subjects in the present study.

Generalization to Other Verbal Production Tasks

Two samples of each subject's narrative and conversational discourse were obtained (a) during baseline, (b) at treatment phase changes, and (c) post-treatment for a total of 12 samples per subject. All samples were transcribed and coded per the protocol previously described (see Appendix B). The coded transcripts are presented in Appendix E. The discourse data are presented individually for each subject in Tables 8 through 11. Data from the four samples (two narratives and two conversations) obtained at each of the three phases of the study were collapsed across discourse tasks and averaged to yield a mean and standard deviation for each of the phases. Percentages reflected on the tables were derived in the manner previously described. The resulting changes in scores for all subjects are presented in Table 12.

Subject 1

Subject 1's narrative and conversational discourse data are presented in Table 8. Analysis of these data indicated that although little change in the percentage of grammatical sentences was observed, a change was reflected in the percentage of simple versus complex sentences used. A 22% increase over baseline in the subject's use of complex sentences was observed post-treatment. This contrasting finding may reflect the subject's increased, but unsuccessful, attempt to produce more linguistically complex sentence constructions containing embeddings.

The subject's use of verbs also increased from 23% during baseline, to 34% following the first treatment phase, to 44% following the second treatment phase. This subject consistently used a greater percentage of verbs than nouns throughout the study, a finding that is inconsistent with studies that characterize agrammatism as a lexical problem wherein a greater proportion of noun than verb use was observed (e.g., Gleason et al., 1980; McCarthy & Warrington, 1985; Miceli et al., 1983; Myerson & Goodglass, 1972; Saffran et al., 1989; Zingeser & Berndt, 1990). The subject's ratio of open versus closed class words used and MLU in words remained essentially unchanged throughout the study.

Subject 2

Table 9 presents the narrative and conversational discourse data for Subject 2. Analysis of the data again indicated that MLU in words, open/closed class word ratio, and the percentage of grammatical sentences used was relatively unchanged. However, the subject's use of complex sentences increased slightly from 1% during baseline to 5% post-treatment. The most striking change was observed in verb use which increased from 20% during baseline, to 28% following the first treatment phase, to 33% following the second treatment phase.

Table 8

Mean and Standard Deviations of Discourse Samples - Subject 1

	Pre-tx Mean	SD	Mid-tx Mean	SD	Post-tx Mean	SD
MLU	5.0	.7	5.0	.3	5.0	.5
% grammatical sentences	36	7	36	3	37	9
% simple sentences	63	18	70	8	41	7
% complex sentences	37	18	30	7	59	7
Mean Embeddings	.4	.2	.4	.1	.7	.2
% nouns	22	4	18	8	18	1
% verbs	23	8	34	5	44	11
% open class	53	1	52	9	52	2
% closed class	47	2	48	7	48	4

Table 9

Means and Standard Deviations of Discourse Samples - Subject 2

	Pre-tx Mean	SD	Mid-tx Mean	SD	Post-tx Mean	SD
MLU	3.1	.1	2.9	.2	3.2	.5
% grammatical sentences	10	3	14	4	9	1
% simple sentences	99	2	96	2	95	4
% complex sentences	1	2	4	2	5	3
Mean Embeddings	0	0	0	0	0	0
% nouns	35	4	32	5	40	5
% verbs	20	8	28	7	33	8
% open class	66	3	72	2	71	3
% closed class	34	3	28	2	29	3

Subject 3

Table 10 presents Subject 3's narrative and conversational discourse data. Analysis again indicated that MLU in words, open/closed class word ratio, and percentage of grammatical sentences remained essentially unchanged. Of note is the subject's increased use of complex sentences from 30% during baseline, to 35% following the first treatment phase, to 39% following the second treatment phase. As with Subject 1, this finding could be interpreted as reflecting increased, but unsuccessful, attempts to use more linguistically complex sentence structures. The subject's percentage of verb use increased slightly from 27% during baseline to 29% post-treatment; however, his noun/verb ratio was essentially equal throughout the study.

Subject 4

The discourse data (presented in Table 11) for Subject 4 was consistent with the other three subjects in that little change was noted in MLU in words, open/closed class word ratio, and the percentage of grammatical sentences used. However, unlike the other three subjects, this subject showed a decline in the percentage of complex sentences and verbs used post-treatment. Subject 4 used a greater percentage of complex sentences pre-treatment (unlike the other subjects) and, like Subject 1, the subject consistently used a greater percentage of verbs than nouns throughout the study.

In summary, Table 12 presents change scores post-treatment for all four subjects. These scores were derived by subtracting pre-treatment mean scores from post-treatment mean scores on Tables 8 through 11. The numbers represent the amount of change, the pluses (+) represent an increase, and the minuses (-) represent a decrease. Analysis of these data revealed interesting and variable results. None of the measures analyzed reflected identical generalization patterns for all subjects, although similar patterns were noted for three of the four subjects. For example, Subjects 1, 2,

Table 10

Means and Standard Deviations of Discourse Samples - Subject 3

	Pre-tx Mean	SD	Mid-tx Mean	SD	Post-tx Mean	SD
MLU	3.1	.2	3.1	.6	3.2	.2
% grammatical sentences	14	4	15	4	11	4
% simple sentences	70	15	65	5	61	6
% complex sentences	30	13	35	4	39	6
Mean Embeddings	.3	.1	.3	.1	.4	.1
% nouns	30	4	32	6	31	5
% verbs	27	2	30	4	29	0
% open class	76	4	78	5	78	1
% closed class	24	4	22	4	22	5

Table 11

Means and Standard Deviations of Discourse Samples - Subject 4

	Pre-tx Mean	SD	Mid-tx Mean	SD	Post-tx Mean	SD
MLU	6.2	.8	6.5	.5	6.4	.4
% grammatical sentences	22	7	16	13	17	6
% simple sentences	54	10	52	7	66	13
% complex sentences	46	10	44	7	34	10
Mean Embeddings	.6	.1	.6	.2	.4	.2
% nouns	17	1	15	3	17	2
% verbs	30	2	28	3	25	0
% open class	56	3	57	4	57	2
% closed class	44	3	43	2	43	3

Table 12

Change Scores in Discourse Samples Across Subjects

	Subject 1	Subject 2	Subject 3	Subject 4
MLU	0	+.1	+.1	+.2
% grammatical sentences	+1	-1	-3	-5
% simple sentences	-22	-4	-9	+12
% complex sentences	+22	+4	+9	-12
Mean Embeddings	+.3	0	+.1	-.2
% nouns	-4	+5	+1	0
% verbs	+21	+13	+2	-5
% open class	-1	+5	+2	+1
% closed class	+1	-5	-2	-1

and 3 increased their percentages of complex sentences and verbs used while Subject 4 demonstrated a decrease in complex sentence and verb usage post-treatment. Minimal change was observed in MLU in words, the percentage of grammatical sentences used, or open/closed class word ratio for all subjects. Additionally, all four subjects used a greater percentage of open than closed class vocabulary throughout the study. This open/closed class ratio is consistent with some characterizations of agrammatism in terms of lexical variables (Frazier & Frederici, 1991; Friederici, 1982; Friederici & Schoenle, 1980; Saffran et al., 1989; Wales & Kinsella, 1981). However, two of the four subjects demonstrated a greater percentage of verb than noun use and one subject demonstrated essentially equal noun/verb ratios throughout the study--a finding that is inconsistent with other characterizations of this disorder as a lexical problem (Gleason et al., 1980; McCarthy & Warrington, 1985; Miceli et al., 1983; Myerson & Goodglass, 1972; Saffran et al., 1989; Zingeser & Berndt, 1990).

The reduced percentage of well-formed sentences observed in the speech of all four subjects seems to lend support to previous studies that characterize agrammatism as a production problem (Gleason et al., 1980; Miceli et al., 1989; Saffran et al., 1989). These data taken together lend further support to the heterogeneity that exits in the aphasic population in general and perhaps to agrammatic aphasic individuals as well. The lack of consistent generalization patterns in discourse tasks indicates the need to program responding across language situations. That is, improvement in spontaneous language tasks can not be expected to occur even when strong treatment effects occur.

Generalization to Pre- and Post-test Measures

Generalization was explored based on comparison of pre- and post- treatment performance on a standardized aphasia test (*WAB*) and an unpublished comprehension battery (*PCBA*). This comparison allowed investigation of the effects of treatment on

more general language responses in order to ascertain whether acquisition of the behaviors trained affected overall language performance. Results of these measures are presented in Table 13.

Examination of the data in Table 13 indicates that only Subject 3's *WAB* AQ and CQ were substantially higher post-treatment. Overall scores for the other three subjects remained relatively consistent pre- and post-treatment. Subject 3's 12.4 point increase on his AQ and 9.1 point increase on his CQ was fairly evenly distributed across the subtests that comprise these quotients; however, spontaneous speech and writing scores reflected the greatest change. This change could be attributed to the treatment (production training) in that this subject did improve his verbal and written production of three sentence types. In addition, analysis of his discourse post-treatment also reflected an increase in the percentage of complex sentences and verbs used. However, since there was not a control group in this study, the changes seen may only reflect variability of performance across the two measurements.

The other three subjects' data suggested that their language performance, as measured by the *WAB,* was not affected by the treatment administered, even though these subjects also demonstrated improvements during treatment in both verbal and written production of sentences, auditory verbal comprehension of sentences and discourse language tasks. Thus, this finding was not unexpected, as standardized test measures are seldom, if ever, sensitive enough to reflect discrete changes in language behavior (Naeser, 1975). Instead, as with Subject 3, these test scores more likely reflect the inherent variability between two observations of behavior.

Scores on the *PCBA* showed more variability among the subjects. For example, Subjects 1 and 2 showed slight improvements in sentence comprehension while Subjects 3 and 4 showed slight decreases in performance. This stands in contrast to the improvements in sentence comprehension observed during treatment in all subjects. It

Table 13

Speech and Language Test Results Pre- and Post-Treatment

	Subject 1		Subject 2		Subject 3		Subject 4	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Western Aphasia Battery								
Aphasia Quotient	77.0	77.8	64.3	66.2	62.4	74.8	68.0	67.2
Cortical Quotient	80.4	83.5	68.1	73.5	72.4	81.5	73.9	71.8
Spontaneous Speech	13.0	13.0	13.0	13.0	12.0	14.0	13.0	14.0
Auditory Verbal Comprehension	9.6	9.6	7.5	8.3	8.1	9.1	7.9	8.6
Repetition	9.0	8.8	6.8	5.2	5.2	6.0	5.9	5.7
Naming	6.9	7.5	4.9	6.6	6.9	8.3	7.2	5.3
Reading	7.6	8.6	4.8	7.2	8.3	8.8	7.6	7.2
Writing	8.8	9.6	6.0	6.4	5.8	7.5	7.2	6.8
Philadelphia Comprehension Battery for Aphasia								
Lexical Comprehension	98%	100%	98%	98%	100%	100%	100%	100%
Sentence Comprehension	77%	85%	67%	72%	77%	72%	82%	80%
Reversible Sentences	60%	70%	47%	43%	54%	43%	70%	63%
Lexical Sentences	93%	100%	87%	100%	100%	100%	90%	97%
Active/Subject-relative clause	83%	77%	77%	70%	87%	73%	87%	87%
Passive/Object-relative clause	75%	90%	50%	65%	60%	75%	75%	80%
Grammaticality Judgment	98%	97%	85%	83%	93%	95%	93%	93%

is, however, noteworthy that all four subjects' scores on the sentence types that were trained (passive and object-cleft) were 5% to 15% higher post-treatment. In view of the fact that their *PCBA* scores on lexical comprehension, grammaticality judgment, and comprehension of untrained sentence types (active and subject-relative clause) were essentially unchanged pre- and post-treatment, it would be reasonable to attribute the improvement in comprehension of passive and object relative-clause sentences to the treatment applied. However, again the absence of a control group precludes drawing this conclusion based only on these two samples of the behavior.

Taken together, these data seemed to suggest that even when acquisition and generalization are observed on measurements of session-to-session performance, these gains can not be expected to generalize to performance on more general speech-language testing. Thus, it can be concluded that it is not appropriate to utilize pre- and post-test performance measures such as these to document treatment efficacy. Measures that are more sensitive to reflecting changes in responding (e.g., repeated measures during treatment) are needed.

Summary of Generalization Effects

The results of this study indicated that linguistic-specific comprehension and production treatment were effective in facilitating cross-modal generalization from comprehension treatment to verbal production and to written production for the sentence types trained for all subjects. Some improvement in auditory verbal comprehension also occurred with production treatment. As predicted, generalization did not occur across sentence types that involved different kinds of linguistic movement--a finding that is consistent with the results of Thompson and colleagues previous treatment studies (Straw, 1992; Thompson et al., 1993; Thompson et al., 1994). This finding lends psychological reality to Chomsky's GB theory in terms of

the different types of linguistic movement that purportedly are required to derive the surface forms of passive and object-cleft sentence constructions.

Analysis of the discourse data revealed variable results of generalization to verbal tasks not targeted in treatment both within and across subjects. Three subjects demonstrated an increase in the percentage of both complex sentences and verbs used post-treatment across discourse tasks while the fourth subject showed decreased usage of both. As treatment focused on training complex sentence forms and training protocols emphasized verb identification and thematic role relations, this finding could be interpreted as resulting from the treatment administered. However, the lack of a control group precludes concluding that changes that occurred resulted from treatment.

The fact that changes in discourse occurred at all is a remarkable finding in view of the strength of this measure of generalization. That is, the more differences that exist between a training task and a generalization task, the stronger the test of generalization. Discourse tasks differed from training tasks in at least two ways--the tasks themselves (constrained sentence production training probes versus unconstrained narrative and conversational language probes) and the stimuli employed to elicit the probes (picture pairs and verbal model in treatment probes versus story book or video tape and no model in discourse probes). In addition, the environment and participants differed for the conversational probes (i.e., they were not done in treatment rooms and familiar partners rather than clinicians were present). Thus, these discourse tasks would be considered a strong test of generalization and any changes that occurred would be considered important.

The variability in the discourse data and the lack of consistent generalization patterns indicated that generalization to spontaneous language may need to be addressed in the treatment itself or in the way in which it is elicited. That is, the discourse tasks

themselves may not have provided the opportunity for subjects to demonstrate what had been acquired in training.

Examination of the standardized pre- and post-test measure indicated that overall scores for three of the four subjects remained relatively unchanged. This finding suggested that treatment gains may not be reflected on the general language performance tested in standard aphasia tests. Thus, the repeated measures obtained in single-subject experimental research designs appear to be an essential component in the investigation of treatment efficacy.

Reliability

Interjudge reliability was computed for the dependent variable treatment probes (auditory verbal comprehension and verbal production) and the dependent variable generalization probes (written production). Verbal production probes were transcribed either on-line or from audio tapes and subsequently scored per the protocol outlined in Appendix A. Comprehension probes were scored on-line as either correct (+) or incorrect (-) within five seconds of presentation. Written production was scored using the same scoring protocol as verbal production. All of these probe conditions were scored for half of the baseline sessions and one-third of the treatment sessions for all subjects by the clinician administering the probes and another certified speech-language pathologist.

Interjudge agreement was high across all subjects with an overall range of 80% to 100% and a mean of 93% for all responses scored. Agreement on production probes was slightly higher (90% to 100%) than on comprehension probes (80% to 100%).

The discourse data were transcribed from audio tapes and subsequently coded using the procedures outlined in Appendix B. The author served as the primary transcriber and coder for all language samples. A second certified speech-language pathologist trained in transcription and coding procedures independently checked

transcription reliability of all samples and coded half of the samples. Disagreements of transcription and coding were discussed and resolved by the author.

CHAPTER IV

SUMMARY AND CONCLUSIONS

Summary

The purpose of this study was to examine the acquisition and generalization effects of linguistic-specific comprehension and production treatment on comprehension and production of two complex sentence types that involve NP- and wh-movement--passive and object-cleft sentence constructions. The following questions were posed:

1. (a) Will linguistic-specific comprehension treatment facilitate acquisition of auditory verbal comprehension of reversible passive and object-cleft sentence forms in agrammatic aphasic subjects?

   (b) Will linguistic-specific production treatment facilitate acquisition of verbal production of reversible passive and object-cleft sentence forms in agrammatic aphasic subjects?

2. If comprehension or production of these sentence forms is acquired, will generalization occur to untrained exemplars within and/or across trained sentence types and/or to corresponding untrained active sentences?

3. If generalization occurs, does it occur with both treatment methods?

4. If comprehension or production of these sentence forms is acquired, will generalization occur from comprehension treatment to verbal production, from production treatment to auditory verbal comprehension, and to verbal discourse and written production?

5. If generalization occurs, does it occur with both treatment methods?

A single subject, multiple baseline across subjects and behaviors design was employed to evaluate acquisition and generalization effects. Four neurologically stable agrammatic Broca's aphasic subjects completed the study. Two subjects were trained to comprehend the target sentence constructions using comprehension training and two subjects were trained to produce them using production training. The order of the treatment methods and sentence constructions trained was counter-balanced across subjects. Treatment for each of the four subjects consisted of three phases (baseline, training of the first sentence type, and training of the second sentence type) that allowed examination of treatment and generalization effects within and across subjects and behaviors.

The results of the study indicated that the two treatment methods were effective in facilitating acquisition of auditory verbal comprehension and verbal production of passive and object-cleft sentences. Secondly, the treatment methods were effective in facilitating generalized comprehension and verbal responding within sentence types. As predicted, neither treatment method facilitated generalization across the sentence types that involved different types of linguistic movement. Finally, both comprehension and production training were effective in facilitating cross-modal generalization to written production for the sentence types trained.

Comprehension treatment facilitated generalization to verbal production of the trained sentence types in both subjects and to the untrained active sentence in one subject. Production treatment influenced auditory verbal comprehension during training in both subjects; however, the influence was limited for one subject. The two subjects who received comprehension treatment evidenced a clearer generalization effect than the subjects who received production treatment, in that their improved comprehension and production corresponded to the sentence type being trained during each treatment phase. Cross-modal generalization to written production for the

untrained active sentence was observed in three subjects while the fourth subject overgeneralized the treatment effect and tended to write the more complex sentence type being trained instead of the corresponding active sentence.

Variable generalization patterns across subjects were reflected in verbal production tasks not targeted in treatment. The absence of a control group precludes concluding that changes that did occur resulted from treatment; however, these changes are considered to be important in terms of the strength of this generalization test. The lack of a consistent generalization pattern was interpreted as reflecting the heterogeneity that exists in the aphasic population in general.

Generalization to overall language performance as measured by a standardized aphasia test pre- and post-treatment appeared to occur in only one of the four subjects. Again, the changes in test scores for Subject 3 can not be attributed to the treatment, since there was no control group in the study and test scores remained consistent for the other three subjects pre- and post-treatment. This finding emphasizes the inappropriateness of using only standardized pre- and post-treatment measures to document treatment gains.

Conclusions

The results of this study lend further support for the use of linguistically-based treatment methods to remediate sentence production deficits in agrammatic aphasic individuals. The effects of the two treatment methods employed in the study testify to the efficacy of the treatments in terms of both acquisition and generalization of specified linguistic structures. In addition, both treatment methods were effective in facilitating cross-modal generalization to written production of the linguistic structures trained and comprehension treatment resulted in improved comprehension and verbal production of trained sentence types.

Production treatment had some influence on auditory verbal comprehension of trained sentence types in both subjects. In addition, all of the subjects' comprehension scores on the *PCBA* were improved post-treatment for the sentence types targeted in treatment. While the increase in *PCBA* scores post-treatment can not be attributed as resulting from the treatment due to the absence of a control group, it is interesting to note that scores on untrained sentence types did not show a corresponding increase.

The variable generalization patterns observed in untrained verbal production tasks suggest that, in spite of robust treatment effects, improvement in discourse can not be expected to occur. This finding is consistent with three of the four subjects' relatively unchanged overall language performance on a standardized pre- and post-test measure.

Implications for Future Research

The results of this study suggested several areas in which additional research is warranted. First, the study needs to be replicated with other subjects who present deficit patterns similar to these four subjects. Replication of this nature would indicate whether the response to treatment observed in these subjects is typical of agrammatic Broca's aphasic subjects in general. In addition, replication with subjects representative of other aphasia types that present asyntactic comprehension and/or agrammatic production (e.g., conduction aphasia) would testify to the efficacy of the treatment employed for other aphasic individuals.

Second, the differences in the influence of treatment on auditory verbal comprehension of sentences suggested that comprehension and production treatment combined should be explored. That is, combined treatment might strengthen the effect on comprehension accuracy which was at a lower level than production accuracy for all subjects throughout the study. As stated previously, a combined training protocol should include reinforcement of correct comprehension as well as production responses

in order to facilitate acquisition in both input and output modes. In addition, to ascertain the relation between memory and comprehension, more in-depth testing of memory should be accomplished prior to treatment. For example, reading comprehension (i.e., in a written sentence/picture matching task) could be probed and compared with auditory verbal comprehension probes to determine whether the transitory nature of verbal input yields different results than visual input. If memory were found to be a factor in differences between visual and verbal processing, some of the questions regarding the dissociations between comprehension and production performance might be answered.

Third, the variable generalization observed in untrained verbal discourse suggested a need to program responding across language situations. It is also possible that the tasks employed to elicit discourse were not sensitive enough to reflect changes. That is, the tasks themselves may not have provided an opportunity for the subjects to use the sentence structures targeted in training. Thus, elicitation tasks that do provide the opportunity to do so should be explored.

Finally, the efficacy of utilizing linguistically-based treatments with other sentence constructions that involve linguistic movement should be undertaken in order to further test the linguistic theory that underlies the treatment method. For example, training other sentence types that require NP-movement to derive S-structure (e.g., subject and object raising or locative inversion) and examining generalization within and across additional sentence types that require NP- and wh-movement (e.g., passive, object-cleft, and wh-interrogatives) could lend psychological reality to Chomsky's GB theory as well as further support for the use of linguistically-based treatment.

APPENDIX A

SCORING PROTOCOL FOR SENTENCE PRODUCTION

Score

5 - Grammatically correct and appropriate sentence for the target picture.

4 - Grammatically correct and appropriate sentence for the target picture; may have contained paraphasias or minor spelling errors.

3 - Grammatically incorrect and inappropriate sentence for the target picture; may have been incomplete but contained at least 50% of the target words and *wh* and/or NP movement was evident.

2 - Grammatically incorrect and inappropriate sentence for the target picture; may have been incomplete, containing less than 50% of target words and incorrect *wh* and/or NP movement was evident (e.g., passive construction being trained overgeneralizes to object-cleft and/or active sentences)

1 - An active sentence was produced that was incorrect for the target picture when an active sentence was being elicited; no or inappropriate *wh* and/or NP movement was evident when passive or object-cleft sentences were being elicited

0 - Incomplete utterance that did not meet any of the above criteria; complete sentence that was inappropriate and/or unrelated to the target picture.

APPENDIX B

LINGUISTIC CODING PROCEDURES

A. General Guidelines

1. Bracketing Codes

   a) Square brackets ([]) were used around each lexical and sentence level code.

   b) All codes were listed at the end of each utterance before the punctuation mark.

2. Flawed or absent elements or structures were preceded by * or - respectively.

3. Legally omitted elements or structures were preceded by #.

4. The coding steps were followed in the specified order. Some steps were inappropriate or unnecessary for some utterances, in which case they were omitted.

B. Coding Procedure

1. Each utterance was coded as either a grammatical sentence [s], an ungrammatical sentence [*s], a nonsentence [ns], a flawed nonsentence [*ns], or an elliptical sentence [es]. These determinations were made as follows:

   [s] a grammatically correct sentence containing a matrix verb

   [*s] a grammatically incomplete or flawed sentence containing a matrix verb

   [ns] a single word or phrase that does not contain a matrix verb or grammatical error

[*ns] a single word or phrase that does not contain a matrix verb but does contain a grammatical error

[es] an utterance in which context clearly denotes what has been ellipted

2. Each [s] or [*s] was coded as either a simple or complex sentence and the type of sentence was coded as follows:

a) [ss] simple sentence with no embedded clause

[cs] complex sentence with one or more embedded clause(s)

b) sentence type codes

[ds] declarative sentence

[pa] passive sentence

[ocl] object-cleft sentence

[scl] subject-cleft sentence

[i] imperative sentence

[con] conjoined sentence

[wh] wh-question

[yn] yes-no question

[pq] prosodic question

[tq] tag question

[eq] echo question

[aq] alternative question

3. The number and type of embedded clause(s) was coded for each [s], [*s], [ns], and [*ns] in the order it occurred in the utterance as follows:

a) number of embedded clause(s)

[e0] no embedded clause

[e1] one embedded clause

[e2] two embedded clauses, etc.

b) type of each embedded clause

[oc] object clause

[sc] subject clause

[rc] relative clause

[ac] adverbial clause

[ccl] complement clause

4. A verb-argument structure code and verb type code were assigned for each verb in every utterance containing a verb. The matrix verb was determined on the basis of the surface structure sentence and these codes were preceded with *m*. Verb argument types were included in the verb code. If a verb combined with a particle, the verb type code was preceded with *ph*. Flawed or absent verbs or arguments were denoted with * or - at the appropriate place within the verb-argument structure code. The verbs and argument structures were coded as follows:

a) verb types and associated argument structures:

[ob1] a verb that must take an agent argument (x)

[ob2] a verb that must take two arguments -- an agent (x) and a theme (y) or a predicate (p)

[ob3] a verb that must take three arguments -- an agent (x), a theme (y), and a goal (z)

[op2] a verb that must take an agent argument (x) but the theme (y) is optional

[op3] a verb that must take two arguments -- an agent (x) and a theme (y) but the goal (z) is optional

[c] a verb that must take an agent argument (x) and either a theme (y), a predicate (p), or a sentential clause (s')

[c2] a verb that must take an agent argument (x) and two additional arguments which can include a theme (y), a goal (z), a predicate (p), or a sentential clause (s')

[cop] a copula verb that must take an agent argument (x) and a predicate (p) or a sentential clause (s')

b) verb argument/adjunct types:

[x] agent (usually the subject except in passive and object-cleft sentences)

[y] theme (usually the object, expect in passive sentences)

[z] goal (usually the indirect object)

[s'] sentential clause (i.e., embedded clause)

[p] predicate (e.g., NP, adjective, prepositional phrase)

[j] adjunct (usually prepositional phrases that are optional to the verb phrase, i.e., not an argument)

5. The morphological complexity of each verb was coded, again using *m* to denote matrix verbs. Conjoined sentences containing two or more verb phrases received the modal or auxiliary score for each. If a modal occurred alone in an utterance, no score was assigned and no lexical code given. One point was assigned for base form (t1) with additional points assigned as follows:

+1 Appropriate tense

+1 Modals (e.g., can, could, should, etc.)

+1 Auxiliary use of *have* or *be*, including passive form

+1 Participle (i.e., overt *-ing* or *-ed* ending)

+1 Infinitival marker *to*

+1 Negation

+1 Verb particle (i.e., phrasal verbs like *stand up*, *sit down*, etc.)

6. Lexical items were coded in the order in which they occurred in the utterance as follows:

   [n] noun

   [a] adjective

   [ad] adverb

   [cc] closed class item (i.e., pronouns, prepositions, articles, conjunctions, etc.)

   [wh..] all wh-form words were coded when used in matrix wh-questions (e.g, [what], [who], [when], etc.)

   Words such as *yes, well, no, sure, please, thank you, hello, right, ok*, etc. and idiosyncratic forms such as *boom, tick, gong, oops*, etc. were not given a lexical item type. Proper noun combinations (e.g., *cable TV*) were coded as [a][n]. Nouns listed in the dictionary as having an adverbial function (e.g., *home*, *tomorrow*, etc.) were given the lexical code consistent with their use in the utterance.

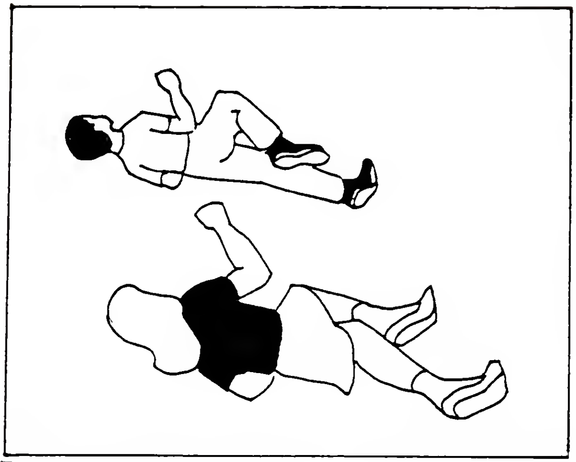
APPENDIX C

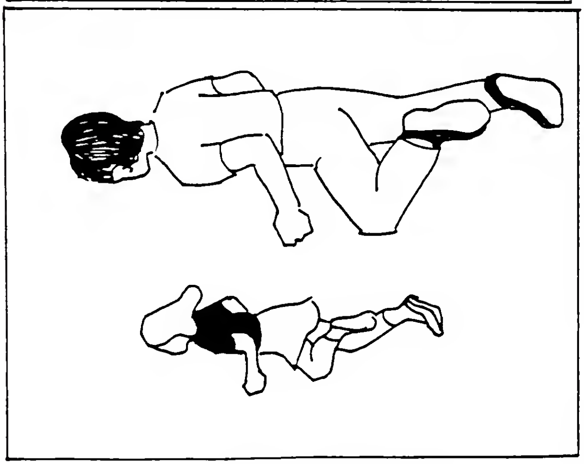
EXPERIMENTAL STIMULI

Trained Sentences	Foil Sentences
The woman kissed the man.	The man kissed the woman.
The runner chased the coach.	The coach chased the runner.
The baby touched the mother.	The mother touched the baby.
The teacher measured the pupil.	The pupil measured the teacher.
The child tickled the father.	The father tickled the child.
The farmer followed the cop.	The cop followed the farmer.
The dancer handcuffed the clown.	The clown handcuffed the dancer.
The girl kicked the boy.	The boy kicked the girl.
The doctor covered the nurse.	The nurse covered the doctor.
The waiter phoned the cook.	The cook phoned the waiter.

Untrained Sentences	Foil Sentences
The mother kissed the baby.	The baby kissed the mother.
The boy chased the girl.	The girl chased the boy.
The man touched the woman.	The woman touched the man.
The nurse measured the doctor.	The doctor measured the nurse.
The clown tickled the dancer.	The dancer tickled the clown.
The pupil followed the teacher.	The teacher followed the pupil
The cop handcuffed the farmer.	The farmer handcuffed the cop.
The cook kicked the waiter.	The waiter kicked the cook.
The father covered the child.	The child covered the father.
The coach phoned the runner.	The runner phoned the coach.

APPENDIX D





APPENDIX E

CODED LANGUAGE TRANSCRIPTS

Subject 1

Conversation Sample 1

S=Subject, F= Family Member

1/19/93

F We don't have to watch ourselves.

F All right.

F That would be very <disconcerting> for me.

S <Yea> [ns].

F How about you?

F What do you think Syl?

S (uh)^

F Are we on?

F Ok.

S Are we on [s][ss][yn][e0][mcopxp][x][p][mt1][cc][cc]?

S I think it/'s most informative

[s][cs][ds][e1][mcxs'][x][s'][mt1][oc][copxp][x][p][t1][cc][cc][ad][a].

F Had you heard any of this before about companies that do this?

S No [ns].

F (uh) What did you think about the elder care <aspect>?

S <Yea> (yea) [ns].

F What did you think?

S I thought it was a good idea

[s][cs][ds][e1][mcxs'][x][s'][mt2][oc][copxp][x][p][t2][cc][cc][cc][a][n].

F (uh) Do you know velcro?

S No [ns].

F Remember when you lived at Winston Towers?

F Velcro is across the street McCormick in Skokie and was almost directly well not directly across but between Pratt and Touhey.

S Yea [ns].

F I'm pretty sure or certainly between Pratt and Howard.

F Velcro is one of the companies they mentioned^

S Oh [ns].

F as being innovative^

S <Yea> [ns].

F <in the> (uh) childrens aspect.

F But I am delighted to hear^

S Yea [ns].

F about the elderly.

S Yea [ns].

F You know?

F That would make>

F That's at the other end of the spectrum that makes sense.

S Yea [ns].

F Mhm.

F Which do you think is more important?

F Child care or elder care?

S Child care [ns][e0][a][n].

F Why?

S I think that this is a good country

[s][cs][ds][e1][mcxs'][x][s'][mt1][oc][copxp][x][p][t1][cc][cc][cc][cc][a][n].

S (and that) I/'m sure that the chance/s are good people who don't have much to better themself/s [*s][cs][ds][e3][mcopxp][x][p][mt1][ccl][copxp][x][p][t1][rc][cop*xp][*x][p][t3][rc][ob2xy][#x][y][t2][cc][a][cc][cc][n][a][n][cc][n][cc].

S (and) For that reason I think that child care

[*s][cs][ds][e1][mcx*s'][x][*s'][oc][cc][cc][n][cc][cc][a][n].

F What about Robin?

F Do you think it would have helped her get back into the academic track and work track sooner?

F No?

F That she might not have chosen to wait so long to get back?

F No?

F It could be real you know.

F uh very much so since for Susan where they both work this is a very important consideration.

S Yea [ns].

F If her company had child care^

S Yea [ns].

F or even what they consider what has been innovative to send someone if the normal uh day care provision is disrupted if a child is sick would that be a <marvelous> benefit.

S <Yea> [ns].

F I'd love to see more of that you know being uh instituted.

F Did you see that before?

S Yea [ns].

F On Diane on a>

F what's she on?

F Prime Time?

S Prime Time [ns][e0][n].

F Do you watch that?

F See I seldom see it.

S <Yea> [ns].

F <So> this is very interesting to me to see this as a one of the options.

S Yea [ns].

F I like the whole idea you know.

F (uh) What did you do yesterday Syl?

S (uh well) I enjoy/ed the meeting [s][ss][ds][e0][mcxy][x][y][mt2][cc][cc][n].

F What was the meeting about?

S (uh) Hate [ns][e0][n].

F Hate?

F By who?

F Anyone specific?

S (nee) Neonazi/s [ns][e0][n].

F Oh.

F Was there a speaker?

S (uh) Yea [ns].

F Anyone we know?

S No [ns].

F Was this a discussion or just a lecture?

S A lecture [ns][e0][cc][n].

F Questions and answers?

S Yea (uh) at the end of it (uh) we took answer/s

[s][ss][ds][e0][mop3xy][x][y][mt2][cc][cc][n][cc][cc][cc][n].

F Well how did the group feel mainly?

S Not good at all [ns][e0][ad][a][cc][cc].

F Do they think there should be curbs on this kind of <speech>?

S <Yea> [ns].

F Mhm.

F How do you feel about that?

F I don't know what that means.

S I/'m (I'm) not XX sure but I think that there is too much hate [s][cs][con][e1][mcopxp][x][p][mt2][mcxs'][x][s'][mt1][oc][copxp][x][p][t1][cc][a][cc][cc][cc][cc][ad][cc][n].

=sound like sinctly

F But what about freedom of speech?

S Yea [ns].

F There's a whole question of balance there of how we stop the hate^

S Yea [ns].

F And don't eliminate^

S Yea [ns].

F freedom of speech.

F It's a uh>

F I don't like what they have to say any better than anyone else.

S No [ns].

F But I'm worried about cutting off popular opinions.

S Yea [ns].

F Unpopular opinions you know?

F You've had enough of us?

+ tape ends

Subject 1

Conversation Sample 2

S=Subject, F=Family Member

1/19/93

F You first Syl.

F What do you think?

S I don't understand that [s][ss][ds][e0][mcxy][x][y][mt3][cc][cc].

F What they're saying is that it in a sense (uh) says that the old concept of the neighborhood school^

S Yea [ns].

F is not necessarily the only choice.

F <That>^

S <Yea> [ns].

F Fr example if you live in a city like Evanston you should be able to choose whatever school you want your child to attend.

F That's one concept that they're talking about of choice.

F (uh) There's another one that says each for each child a parent is issued a voucher.

S Yea [ns].

F And they can then use that uh voucher towards admission to any school they want.

F That was a big debate in the campaign.

F Bush said it should be able to be used <for>^

S <Yea> [ns].

F What did he say?

F Do you remember?

S That it matter/ed whether that 00:06

[*s][cs][ds][e1][mcx*s'][x][*s'][mt2][rc][cc][cc][c][cc]^

F Take you time and think.

S Whether that is (uh) 00:05 [*ns][e1][rc][copx-y][x][-y][t1][cc][cc]^

F Did he say that they should be used only for public schools?

F What did he say?

S (uh) They should be used at private school/s

[s][ss][pa][e0][mob2xy][#x][y][j][mt5][cc][cc][a][n].

F They could be <used>^

S <Yea> [ns].

F for both?

F And Clinton said what?

S All that money is for public school/s

[s][ss][ds][e0][mcopxp][x][p][mt1][cc][cc][n][cc][a][n].

F Right.

F And here they're talking about what Chicago tried.

F Remember what they tried in neighborhood councils?

F Where they broke the entire city into <districts>^

S <Yea> [ns].

F Where people elected their own local school boards with power to hire and fire superin (uh) principals <within>^

S <Yea> [ns].

F the school ok?

F And here they're talking about>

F You know what school?

F What became a magnet school in our old neighborhood?

S (uh uh uh wam)^

F What's the street you live in?

S Garden terrace [ns][e0][n].

F That's where we lived.

F And what's the street you're on now?

F What's your address?

S Garden terrace [ns][e0][n].

F No that's our old address though.

F What's your address now at Imperial Towers?

S Forty two fifty Marine Drive [ns][e0][n][n][n][n].

F Ok.

F What was the building^

S <Yea> [ns].

F <then> on Marine Drive^

=laughing

S I (uh) 00:04 [*ns][e0][cc]^

F Do you know what it became?

S Yea a magnet school [ns][e0][cc][a][n].

F What's it called?

S No I [*ns][e0][cc]^

F Mickey Mouse Disney^

S <Yea> [ns].

F <magnet> school is there now.

F And they want to create more^

S Yea [ns].

F magnet schools like this but (uh) I'm not sure.

F I think Disney's emphasis is on science.

F Are there others who (uh) concentrate on the creative arts?

S Yea [ns].

F Do you think that's a good idea?

S Yea [ns].

F Would you like to see^

S Yea [ns].

F expanded choice?

S Yea [ns].

F What do you purpose do you think it would it serve?

S (uh that) This world is large and it has room for everybody

[s][ss][con][e0][mcopxp][x][p][mt1][mcopxp][x][p][mt1][cc][n][a][cc][cc][n][cc][cc].

F Well (uh) how would this affect school choice though Syl?

:00:12

F Do you think it might be a way of getting parents more involved^

S (uh)^

F as one thing^

S Yea [ns].

F You know to (uh) become more aware of what's going on in all the schools.

F uh Do you think it would work for all parents and kids?

S No [ns].

F Mhm I don't either.

F I think there would be problems you know.

F (uh) Do you have any objections to using vouchers for private schools?

:00:08

S I don't have [*s][ss][ds][e0][mcopx-p][x][-p][mt3][cc]>

:00:06

S Oh I don't know [es].

F uh well^

+ tape ends

Subject 1

Conversation Sample 3

S=Subject, F=Family Member

2/19/93

S Oh I/'m hard [s][ss][ds][e0][mcopxp][x][p][mt2][cc][a].

F I'm not sure I understand what you mean Syl.

S (I'm) It/'s XX my heart to whatever it is that I/'m go/ing to give [*s][cs][ds][e2][mcopxp][x][p][mt2][rc][copx-p][x][p][rc][op3xy][x][#y][t5][cc][cc][n] [cc][cc][cc][cc][cc].

=sounds like broken or oping or hoping

F You want to donate your heart?

F I think that's wonderful.

F Have you thought about this before?

F Or is this just>

S Yea [ns].

F I know>

F Have you thought of it?

F Have you signed a (uh)>

F No?

F Or is this just because of what you're <seeing> here?

S <Yea> [ns].

F Well it's a it's the kind of thing you have to think through <Syl>.

S <Yea> [ns].

F And talk to the kids about if you want to be an organ donor.

F uh How do you feel about seeing all the people who were waiting?

S <Yea> [ns].

F <Was> there anything that struck you?

S Yea I was [*s][ss][ds][e0][mcopx-p][x][-p][mt2][cc]>

S (I'm) 00:04 I/'m (uh) [*s][ss][ds][e0][mt2][cc]^

F Take it easy.

S There/'s such 00:05 [*s][ss][ds][e0][mob1-x][-x][mt2][cc][cc]^

F Well when you saw all the people together there were all ages.

S Yea [ns].

F And what struck me is the young people who were waiting for transplants.

F How'd you feel about the selling of the organs <in> India?

S <Oh> [ns].

S No [ns].

F Yea that's a pretty>

F You find that (uh)>

S mhm [ns].

F What bothers you about it?

S I feel that this is (re) responsible for me

[*s][cs][ds][e0][mcxs'][x][s'][mt2][copx-p][x][-p][j][t2][cc][cc][cc][a][cc][cc].

S (and) I would like to have it go to anyone who would want it

[s][cs][ds][e3][mcxs'][x][s'][mt3][oc][ob2xy][#x][y][t2][oc][ob1x][x][j][t1][rc][cxy][x]

[y][t3][cc][cc][cc][cc][cc][cc].

F Well I also have much question about the selling of organs <Sylvia>.

S <Yea> [ns].

F uh There's where you really get into the ethical and moral dilemma.

F uh Poverty stricken people <in>^

S <Yea> [ns].

F uh India put themself at risk by selling^

S Yea [ns].

F an organ.

F That's uh and those well enough off can buy <it>.

S <Yea> [ns].

F That's not the happiest of uh thoughts you know.

F Is there anything you'd rather talk about than this?

F No?

F I guess I'm put off by having Peter Jennings introduce <it>.

S <Yea> [ns].

F He's not my <favorite>.

S <Yea> [ns]?

F Long standing <feeling>.

S <(Well)> what (well what) would you say that this is

[s][cs][wh][e1][mcxs'][x][s'][mt3][oc][copxp][x][#p][t2][what][cc][cc][cc]?

F You mean about Peter Jennings?

F Because I think he's antisemetic.

S Oh [ns]!

F He's uh either living with or dating this gal who's the head of the Arab^

S <Oh> [ns]!

F <union>.

F And he makes irresponsible statements.

F He's like a continuation of a mouthpiece for her^

S <Oh> [ns].

F <when> he makes a lot of allegations.

F So I just literally and figuratively turn <him off>.

S <Yea> [ns].

F I do not want to listen to him.

F uh^

S <(Oh)> (well) I never had that feeling

[s][ss][ds][e0][mob2xy][x][y][mt3][cc][cc][n].

F Yea well it has been fairly well documented that uh he does this.

F uh you know there's a lot of this material in the medical literature^

S Yea [ns].

F About uh the ethics of uh the transplants Syl.

F There really is.

F uh There are many people who have signed donor cards you know.

F uh But that's something really Syl you should talk to the kids about if you feel that you want to do this.

F Because uh there's really >

F It's>

F I I don't think that uh>

F Well I guess relatives can make the decision uh afterwards.

F I'm not sure.

F What's happening with the apartment Syl?

F Nothing so far?

S Nothing [ns][e0][cc].

F They're holding it?

S Yea [ns].

F Good.

F So Where does it stand though?

S Nothing [ns][e0][cc].

S I spoke to Robin [s][ss][ds][e0][mop2x][x][j][mt2][cc][cc][n]^

F Yea.

S last 00:03 night and 00:05 [*ns][e0][a][n][cc]^

F And she hadn't heard anything?

F Oh.

F Ok.

F Well 00:08 uh, I guess this is not our chatty morning Sylvia.

F We better do better than this.

F It's going.

F The tape's rolling.

F uh Anything in particular you want to talk about?

F Huh?

F You don't seem too cheerful this morning.

F No?

F Why?

S I don't know [es].

S I/'m think/ing about Bert [s][ss][ds][e0][mcxy][x][y][mt3][cc][cc][n].

F What about?

S Oh [ns]>

F (Well) when the weather gets better Sylvia.

F You miss him.

F Why not?

F Spent a lot of time together.

F You think he'd approve of the new place?

S Yea [ns].

F Oh one hundred percent Syl.

F One hundred percent or more.

+ tape ends

Subject 1

Conversation Sample 4

S=Subject, F=Family Member

2/19/93

F How about it <Sylvia>?

S <Yea> [ns].

F That's a subject near and dear to my heart.

F Honda.

S Yea [ns].

F Isn't that amazing that they can do this?

S Yea [ns].

F Really.

S Yea [ns].

F American car manufacturers live in someplace in the a dream world of their own.

F Would you buy an American car now?

F No?

S No [ns].

F It's funny with all the trouble I'm having with my Honda now measured over the whole time I'd still buy another one.

F That's a good car.

F I like that car.

F You're off someplace else again Sylvia.

F You got to come back here.

F What do you want to talk about Syl?

F If not cars and if not uh transplants>

F You're being very quiet today.

S Yea [ns].

S I miss him so [s][ss][ds][e0][mcxy][x][y][mt2][cc][cc][ad].

F But that's understandable Syl.

F There's nothing wrong with that.

F Nothing wrong.

F That's to be expected.

F But you know what the other side of that is?

F Do you?

F What is it?

S Go out have a good time

[*s][cs][i][e1][mphob1x][#x][mt3][rc][*ob2xy][#x][y][t2][cc][a][n].

F Yea go out and find the things that fill your life and can give you some pleasure and meaning.

F You can't help but miss what you've had and loved and enjoyed.

F You know that's nothing wrong with that.

F But you can't let it depress you to the point of not uh being able to do other things.

F Like talk about this segment.

F And any reaction to it Syl?

F None whatsoever?

F Is it because you're not driving now and cars are of little interest^

S Yea [ns].

F to you?

F If you were thinking about a car which you are not but if you were what would you want most from it?

S I need good gasoline [s][ss][ds][e0][mcxy][x][y][mt2][cc][a][n].

F Yea.

F You mean mileage?

F Yea what else?

S (a) A (sa) power [ns][e0][cc][n].

F Ok uh what other things?

S Brake/s work [*s][ss][ds][e0][mop2x][x][mt2][n].

F Yea safety features.

S <Yea> [ns].

F <Yea> mhm.

F And one other thing.

F uh A lot of other things but that would be a factor Sylvia.

F Safety and uh good performance and gas mileage.

F It usually figures in the purchase.

S (Well) that was the price [s][ss][ds][e0][mcopxp][x][p][mt2][cc][cc][n].

F Absolutely the cost you know.

F And the foreign cars certainly are still competitive if not cheaper than the American made cars.

F And the auto industry resists any kind of uh change and comparison.

F You know that was what was interesting about being in California.

F It's the first time in years that we've been there where you could see the sky.

S Yea [ns].

F The rains cleared out all the smog.

S Yea [ns].

F And it was so clear.

F It was beautiful.

F And uh that's interesting isn't it that the automobile manufacturers said they couldn't do it and Honda has done it.

S Yea [ns].

F To me they keep asking the government to push back the uh mileage requirements and Honda went ahead and did it.

S Yea [ns].

F Course I'd like to see a car that gets fifty one miles <to the gallon>.

S <Yea mhm> [ns].

F That's nice you know.

F Ed has one that's supposed to get that kind of uh^

S Oh [ns]!

F Close to that.

F Not that much and he doesn't you know.

F And mine doesn't get any where near that but uh it's a good performing car.

F Do you have to go shopping for anything afterwards?

F What do you need?

S (Oh) I/'m go/ing to the Jewel [s][ss][ds][e0][mob1x][x][j][mt3][cc][cc][cc][n].

F What do you need?

S (Oh) Lot/s of thing/s [ns][e0][n][cc][n].

F Ok well we can do that on the way home.

F uh I have to go too but uh we'll get it later because uh>

F Do you need anything perishable like milk^

S Yea [ns].

F and stuff like that?

F uh Then we better get it at yours uh you know if it's uh anything that doesn't keep in the car then that's all right.

F Are you going to cheer up for your regular session?

F Yes.

F Good.

F It's just on demand that you don't want to do it?

F This has not been our greatest moment.

+ tape ends

Subject 1

Conversation Sample 5

S=Subject, F=Family Member

3/16/93

F What do you think?

S Oh I think that it is criminal

[s][cs][ds][e1][mcxs'][x][s'][mt2][oc][copxp][x][p][t2][cc][cc][cc][a].

F Which?

S I mean that they should stop and search

[s][cs][ds][e1][mcxs'][x][s'][mt2][oc][op2x][x][t3][op2x][x][t3][cc][cc][cc][cc].

F Yea.

F Because the point that's <made> that where do you stop doing that.

S <Yea> [ns].

S Yea [ns].

F You know.

F It's a,>

F What's the answer?

F On the one hand people feel threatened^

S Yea [ns].

F by them being there and on the other hand we know that once you start uh violating civil rights of people it moves from one group to another.

F What do you think?

S I don't know what to think

[s][cs][ds][e1][mcxs'][x][s'][mt3][oc][cxy][#x][y][t2][cc][cc].

F Do you think we ought to legalize drugs Syl?

F Why not?

S Oh I don't know [es].

F We legalize liquor.

S Yea [ns].

F uh We tried prohibition and that didn't work.

F And admittedly uh some of these street drugs you know are dangerous but admittedly so is <alcohol>.

S <Mhm> [ns].

F You know.

F Would>

F What do you think?

F Would we be better off or worse off?

S Legalize drug/s [s][ss][i][e0][mob2xy][#x][y][mt1][n].

F uh, There are studies that show that if they do legalize them there could be an increase^

S Yea [ns].

F in the number of people who use them.

F How would you feel about that?

S I don't know what you mean by legalize/ing drug/s [s][cs][ds][e2][mcxs'][x][s'][mt3][oc][cxy][x][y][ac][ob2xy][#x][y][t2][cc][cc][cc][cc] [n].

F Oh.

F In legal>

F Where drugs are legalized Syl you go to state licenced <stores>^

S <Yea> [ns].

F and they are dispensed there.

S Yea [ns].

F (uh th) There are limits on <what> one can buy.

S <Yea> [ns].

F uh You can't go in you know and uh there uh and you buy them.

F It cuts out the whole margin of profit^

S Yea [ns].

F in drugs for street dealers.

S <Yea> [ns].

F <uh> The price of the drugs would come down.

F It would be accessible and people presumably would not have to rob and kill^

S Yea [ns].

F to afford them and get so in debt to (uh) gang members.

F And uh I'm not sure really whether it has to be prescribed by^

S Yea [ns].

F a physician.

F That I'm not sure.

F But I know just in the same way that liquor stores are licenced^

S Yea [ns].

F uh you would have to go to a^

S Yea [ns].

F licenced store to buy them.

S Yea [ns].

F Does that strike you as having any merit?

S I would say that it is possible to limit the amount of drug/s use/ed [s][cs][ds] [e3][mcxs'][x][s'][mt3][oc][phcxs'][x][s'][t3][oc][ob2xy][#x][y][t2][ac][ob2xy][#x][y] [t2][cc][cc][cc][a][cc][n][cc][n].

F By a <person>^

S <Yea> [ns].

F if this were done?

F Yea I uh I think I would be kind of in favour of trying this Sylvia.

F They've tried it in different spots.

F (uh) Holland^

S Yea [ns].

F does it I think.

F And well people say there's a big difference between Holland and Washington D C.

F uh We've only been spending more and more <money> trying to stop it unsuccessfully.

S <Yea> [ns].

F And it results in more killing.

S Yea [ns].

F So I think I would uh^

S Yea [ns].

F like to see a trial of it at least.

F uh I don't know as that I'd like to see all drugs <sold>.

S <Yea> [ns].

F uh Marijuana.

F uh What's the other one uh?

S Cocaine [ns][e0][n].

F Coke yea.

F uh Crack no.

F I don't think but uh the others you know.

F With uh>

F I don't know how they control it as to the amount.

S <Yea> [ns].

F <That I would> have to read up on and see.

F But uh a terrible <situation>^

S <Yea> [ns].

F that they <describe>.

S <Yea> [ns].

F uh And yet you listen to the people there.

F But their point's well made isn't it?

S Yea [ns].

F That you start chipping <away> at freedom and uh it's not a good idea.

S <Yea> [ns].

F uh It's interesting.

F And it is primarily>

F And they say they are so close <to the> line.

S <Yea> [ns].

F And that uh>

F What do they call it?

F uh Spy and buy I think you know.

F no That's what the others call it.

F Spy and buy.

F What was the other thing?

F Do you remember?

F uh I can't think X.

=impossible

F Well it would be interesting.

F People get very upset about making drugs <legal>.

S <Yea> [ns].

F Cigarettes kill.

S Yea [ns].

F We sell those.

S Yea [ns].

F Liquor kills.

S Yea [ns].

F In a XX.

=impossible

+ tape ends

Subject 1

Narrative Sample 1

11/24/92

S (Uh) This is the story of Cinderella

[s][ss][ds][e0][mcopxp][x][p][j][mt2][cc][cc][n][cc][n].

S (Uh) 00:15 (uh) There is 00:07 dirty dish/s and thing/s that she has to do

[*s][cs][ds][e2][*mob1x][x][mt1][rc][ob2xy][x][#y][t2][rc][ob2xy][#x][#y][t2][cc][a][n]

[cc][n][cc][cc].

S (And then) there/'s the (uh) formal XX or something

[s][ss][ds][e0][mob1x][x][mt2][cc][cc][n][cc][cc].

=unintelligible

S (Uh and then) there/'s the (uh uh well) many thing/s

[*s][ss][ds][e0][*ob1x][x][mt1][cc][cc][a][n].

:00:09

S (Well) there was a formal dinner party

[s][ss][ds][e0][mob1x][x][mt2][cc][cc][a][a][n].

S (And that) there was (two) three guest/s that were to be expect/ed

[*s][cs][ds][e1][*mob1x][x][mt2][rc][cxy][#x][#y][t6][cc][a][n][cc].

S (And that) there was clothes all over [*s][ss][ds][e0][*mob1x][x][mt2][cc][n][cc][ad].

S (And that) there was some goingson [s][ss][ds][e0][mob1x][x][mt2][cc][cc][n].

S (And then there/'s the prince who was uh uh uh) 00:06 (uh) 00:05 (and) there was the prince who was support/ed by the people

[s][cs][ds][e1][mob1x][x][mt2][rc][ob2xy][x][#y][j][t4][cc][cc][n][cc][cc][cc][n].

S (And then) there is (uh uh uh and then there is) the woman at 00:08

[*s][ss][ds][mob1x][x][*j][mt2][cc][cc][n][cc] >

S (Well) there was (uh) thing where their glass slipper

[*s][cs][ds][e1][mob1x][x][mt2][rc][cc][n][cc][cc][a][n].

S (And then) there/'s the person who was go/ing to fit that

[s][cs][ds][e1][mob1x][x][mt2][rc][ob2xy][#x][y][t6][cc][cc][n][cc][cc].

S (And then) there was all the merry [*s][ss][ds][e0][*mob1x][x][mt2][cc][cc][cc][a]>

S (And then there) 00:11 (well) there was one such person that if the shoe fit/3s that XX maid I/'m go/ing to marry

[*s][cs][ds][e2][mob1x][x][mt2][rc][ob2xy][x][#y][t2][ac][ob2xy][x][#y][t5][cc][a][cc][n][cc][cc][cc][n][cc][n][cc].

=unintelligible

S (And then) there/'s the prince [s][ss][ds][e0][mob1x][x][mt2][cc][cc][n].

S (Well) there/'s the stepdaughter/s and the (the uh the uh) maid

[*s][ss][con][e0][*mob1x][x][mt1][cc][cc][n][cc][cc][n].

S (And then) there/'s the [*s][ss][ds][e0][mob1-x][-x][mt2][cc][cc]>

S (he uh) She fit/3s into the (uh) glass slipper

[s][ss][ds][e0][mphob2xy][x][y][mt2][cc][cc][a][n].

S (And) they were marry/ed [s][ss][ds][e0][mop2x][x][mt4][cc].

+tape ends

Subject 1

Narrative Sample 2

1/15/93

S (uh) she was invited to a birthday party

[s][ss][pa][e0][mob2xy][#x][y][j][mt4][cc][cc][cc][a][n].

S (but) she had nothing to do with that

[s][cs][ds][e1][mob2xy][x][y][mt2][rc][ob2xy][#x][y][j][t2][cc][cc][cc][cc].

S She was supposed to (uh uh) clean house [s][ss][ds][e0][mop2xy][x][y][mt5][cc][n].

S (and) she was (uh) 00:14 (and she was) to clean house

[s][ss][ds][e0][mop2xy][x][y][mt4][cc][n].

S (and then) the (uh) prince gave a ball and everyone was invited

[s][ss][con][pa][e0][mop3xy][x][y][mt2][mobxy][#x][y][mt4][cc][n][cc][n][cc][cc].

S (and that) the (uh) maid/s were supposed to go [s][ss][ds][e0][mob1x][x][mt6][cc][n].

S (and then) they had a real good time to (uh) 00:08 (real good time to) fix the dress/s

[*s][cs][ds][e1][mob2xy][x][y][mt2][ac][*ob2xy][#x][y][t2][cc][cc][ad][a][n][cc][n].

S (and then) there was a party for the (uh) maid/s and everything

[*s][ss][ds][e0][mob1x][x][j][mt2][cc][cc][n][cc][cc][n][cc][cc].

S (and then) there/'s the good witch that you would like to (uh) 00:05 bring along (uh bring along) the [*s][cs][ds][e2][mob1x][x][mt2][rc][cxs'][x][s'][t2][oc][op3x-y][x][-y][t2][cc][cc][a][n][cc][cc][ad][cc] >

: 00:16

S (then) there was the good witch that was tell/ing her that she would be in by twelve oclock midnight

[s][cs][ds][e2][mob1x][x][mt2][rc][op3xyz][#x][#y][z][t4][oc][copxp][x][p][j][t3][cc][cc][a][n][cc][cc][cc][cc][cc][cc][a][n][n].

S (but that) she had to be in there by twelve o'clock or there was not to be seen what was for happen [*s][cs][con][e2][mcopxp][x][p][j][j][mt4][*mob1-x][-x][mt2][c-xs']

[-x][s'][t5][oc][copx-p][x][-p][*j][t2][cc][cc][cc][cc][a][n][cc][cc][cc][cc][n].

S (so then) she (uh) had a wonderful time

[s][ss][ds][e0][mob2xy][x][y][mt2][cc][cc][a][n].

S (and that) she was supposed to go [s][ss][ds][e0][mob1x][mt5][cc].

S (and) then came twelve oclock [s][ss][ds][e0][mob1x][x][mt2][cc][a][n].

S It was five minute/s to and she said oh I/'m sorry

[s][cs][con][e1][mcopxp][x][p][mt2][mcxs'][x][s'][mt2][oc][copxp][x][p][t2][cc][a][n]

[cc][cc][cc][cc][a].

S I have to go now [s][ss][ds][e0][mob1x][x][mt3][cc][ad].

S (and that) she was XX [*s][ss][ds][e0][mcopx-p][x][-p][mt2][cc].

=sounds like kiping

S (and that) she lost her slipper [s][ss][ds][e0][mob2xy][x][y][mt2][cc][cc][n].

S (and) that made everything possible for that one because she had lost the slipper on pretense that (well that) the (uh) fellow would come to her

[*s][cs][con][e1][mob2xy][x][y][j][mt2][mob2xy][x][y][*j][mt4][rc][ob1x][x][j][t3][cc]

[cc][ad][cc][cc][n][cc][cc][cc][n][cc][n][cc][cc][n][cc][cc].

S (and that) she better have a good time

[s][ss][ds][e0][mob2xy][x][y][mt1][cc][ad][cc][a][n].

S (and that uh) the (uh the) slipper was expedited to the whole community

[s][ss][pa][e0][mob2xy][#x][y][j][mt4][cc][n][cc][cc][a][n].

S (and that) there was (a uh) two sister/s [*s][ss][ds][e0][*mob1x][x][mt2][cc][a][n].

S (and that) they were not the one [*s][ss][ds][e0][mcopx*p][x][*p][mt3][cc][cc][n].

S (and then) he (uh) was (was uh uh) [*s][ss][ds][e0][mcopx-p][x][-p][mt2][cc]>

S the maid was X try/ing to see if they fit the slipper

[s][cs][ds][e2][mcxs'][x][s'][mt4][oc][cxs'][x][s'][t2][oc][op2xy][x][y][t2][cc][n][cc]

[cc][cc][n].

= sounds like try

S (and) there was the joy of the (uh) maid when they

[*s][cs][ds][e1][mob1x][x][j][mt2][ac][cc][cc][n][cc][cc][n][cc][cc] >

S (and) they had lived happily ever after

[s][ss][ds][e0][mop2x][x][mt4][cc][ad][ad][ad].

+ tape ends

Subject 1

Narrative Sample 3

2/16/93

S It was (uh) a day fill/ed with (uh) anger and (and uh) 00:06 (anger and uh) 00:04 (uh)

[*s][cs][ds][e1][mcopxp][x][p][mt2][rc][ob2xy][#x][y][j][t2][cc][cc][n][cc][n][cc] >

:00:11

S Yea [ns].

=client distracted due to something in the room

S (and uh) There was the usual (uh) 00:12 (the usual) commotion that was excited that the prince was go/ing to make a ball [*s][cs][ds][e][mob1x][x][mt2][ac][ob2-xy] [-x][y][t4][ac][ob2xy][x][y][t6][cc][cc][a][n][cc][cc][cc][n][cc][n].

S (and that) There was (uh) three (uh three) invite/s

[*s][ss][ds][e0][*mob1x][x][mt2][cc][a][n].

S (and that) There was go/ing to be a ball [s][ss][ds][e0][mob1x][x][mt6][cc][cc][n].

S (and) That was (that) 00:12 (that was) [*s][ss][ds][e0][mcopx-p][x][-p][mt2][cc] >

: 00:06

S (Was that) the maid was supposed to be in the kitchen

[s][ss][ds][e0][mcopxp][x][p][mt5][cc][n][cc][cc][n].

S (and that) She was very sorry for that

[s][ss][ds][e0][mcopxp][x][p][j][mt2][cc][ad][a][cc][cc].

S (and that) She had hard feeling/s for (this person) her person

[s][ss][ds][e0][mob2xy][x][y][j][mt2][cc][a][n][cc][cc][n].

S (and that) She was go/ing to X into the crying stage

[*s][ss][ds][e0][mob1x][x][*j][j][mt4][cc][cc][cc][cc][a][n].

=sounds like get

S (and then) There was a flash [s][ss][ds][e0][mob1x][x][mt2][cc][cc][n].

S (and then) There was (uh) 00:07 (uh witch) good witch

[*s][ss][ds][e0][mob1x][x][mt2][cc][a][n].

S (and that) There was (uh uh) [*s][ss][ds][e0][mob1-x][-x][mt2][cc] >

:00:11

S (and that) There was a good witch [s][ss][ds][e0][mob1x][x][mt2][cc][cc][a][n].

S (and that) There was go/ing to be a ball [s][ss][ds][e0][mob1x][x][mt6][cc][cc][n].

S (and that) She was invited too [s][ss][pa][e0][mob2xy][#x][y][mt4][cc][ad].

S (and then) There was (uh) the bishop or the pope or someone who was (uh) the leader of the party

[s][cs][ds][e1][mob1x][x][mt2][rc][mcopxp][x][p][j][t2][cc][cc][n][cc][cc][n][cc][cc]

[cc][cc][n][cc][cc][n].

S (and that) There was (uh) [*s][ss][ds][e0][mob1-x][-x][mt2][cc] >

S I/'m sure that (that) she was the most beautiful girl there

[s][cs][ds][e1][mcopxp][x][p][mt2][ac][copxp][x][p][t2][cc][ad][cc][cc][cc][ad][a][n][a].

S (and that) She was dance/ing [s][ss][ds][e0][mop2x][x][mt4][cc].

S (and and uh then uh) for the time left she had a wonderful time

[s][ss][ds][e0][mob2xy][x][y][j][mt2][cc][cc][n][a][cc][cc][a][n].

S But at ten minute/s to twelve he (uh) I/'m sorry but I have to go now

[*ns][e1][oc][copxp][x][p][t2][ob1x][x][t3][cc][cc][a][n][cc][n][cc][cc][a][cc][cc][ad].

S (and then uh) I don't know what possess/ed her that she was fall/ing (uh falling) down [*s][cs][ds][e2][mcxs'][x][s'][mt3][oc][ob2xy][x][y][t2][ac][ob1x][x][t4][cc][cc]

[cc][cc][cc][ad].

S (and then) There was a slipper who was left [*s][cs][ds][e1][mob1x][x][mt2][rc]

[ob2-xy][-x][y][t2][cc][cc][n][cc].

S (and then the) All the search in the world [*ns][e0][cc][cc][n][cc][cc][n].

S (and then) there/'s nothing that has happened to (uh) fill the void from the (uh) party

[s][cs][ds][e2][mob1x][x][mt2][ac][cxs'][x][s'][t3][ac][ob2xy][#x][y][j][t2][cc][cc][cc]

[cc][n][cc][cc][n].

S (and that then) the two (uh) maiden/s were asked to perform that (that uh) shoe [*s][cs][pa][e1][mc2xys'][#x][y][s'][mt4][oc][ob2x*y][x][*y][t2][cc][a][n][cc][n].

S I/'m sorry but I have to tell you that (that) there was/n't a slipper that was go/ing on them [s][cs][con][e2][mcopxp][x][p][mt2][mop3xyz][x][#y][z][mt3][oc][ob1x][x][t3] [rc][ob1x][x][j][cc][a][cc][cc][cc][cc][cc][cc][n][cc][cc][cc].

S (and that) The (uh uh) was go/ing to go to another house [*s][ss][ds][e0][mob1-x] [-x][j][mt6][cc][cc][a][n].

S (and then) They try/ed (the) on the slipper and it fit [s][ss][con][e0][mphob2xy][x][y][mt3][mop2x][x][mt2][cc][cc][n][cc][cc].

S (and) That/'s how they live/ed happily ever after [s][cs][ds][e1][mcopxp][x][p][mt2][ac][op2x][x][t2][cc][ad][cc][ad][ad][ad].

+ tape ends

Subject 1

Narrative Sample 4

2/19/93

S Cinderella had a lot of (uh) to do

[*s][cs][ds][e1][mob2xy][x][y][*j][mt2][rc][ob2xy][#x][y][t2][n][cc][n][cc].

S She was make/ing the bed/s and all that stuff

[s][ss][ds][e0][mob2xy][x][y][mt4][cc][cc][n][cc][cc][cc][n].

=making sounds like baking

S (and then) There was two (birds that) horse/s that she look/ed after

[*s][cs][ds][e1][*mob1x][x][mt2][rc][phob2xy][x][y][t3][cc][a][n][cc][cc].

S (and that) There was (uh) a scene in which the 00:05 (uh) baron or something sent out (uh uh) an invite to the (uh) ball who they were invited to

[*s][cs][ds][e2][mob1x][x][mt2][ac][phop3xy][x][y][j][t3][rc][ob2*xy][*x][y][t4][cc][cc][n][cc][cc][cc][n][cc][cc][cc][n][cc][cc][n][cc][cc][cc].

S (and that) There were (two) three [*s][ss][ds][e0][mob-x][-x][mt2][cc][a].

S (uh and that) She was not invited [s][ss][pa][e0][mob2xy][#x][y][mt5][cc].

S (and that) She was crushed because there was no 00:04 (uh) 00:03 (no) lack of moral/s

[s][cs][pa][e1][mob2xy][#x][y][mt4][ac][ob1x][x][j][t2][cc][cc][cc][a][n][cc][n].

: 00:06

S However she was prepared to see the 00:12 (uh) 00:11 (uh see the the uh)

[*s][cs][pa][e1][mob2xy][#x][y][mt4][ac][cx-y][#x][-y][t2][ad][cc][cc]>

:00:16

S (well then) There was the good witch which happen/ed to see her

[*s][cs][ds][e2][mob1x][x][mt2][rc][c*xs'][*x][s'][t2][cxy][#x][y][t2][cc][cc][a][n][cc][cc].

S (and that) She had a gorgeous outfit [s][ss][ds][e0][mob2xy][x][y][mt2][cc][cc][a][n].

S (and that) She was (uh) go/ing to the ball

[s][ss][ds][e0][mob1x][x][j][mt4][cc][cc][cc][n].

S (and that) She was (uh uh) 00:11 (was) [*s][ss][ds][e0][mcopx-p][x][-p][mt2][cc] >

:00:22

S (and that) She had a glass slipper which she forgot on the stairway to the star/s

[s][cs][ds][e1][mob2xy][x][y][mt2][rc][cxy][x][y][j][j][t2][cc][cc][a][n][cc][cc][cc][cc]

[n][cc][cc][n].

S (uh and that) She had to be home by twelve oclock

[s][ss][ds][e0][mcopxp][x][p][j][mt4][cc][ad][cc][a][n].

S (and that) She was (uh) 00:07 (uh) 00:05 (uh) 00:03 (and that she was) supposed to

be in by twelve oclock [s][ss][ds][e0][mcopxp][x][p][j][mt5][cc][cc][cc][a][n].

S (and then) There was the glass slipper that fell on the step/s of the stair/s

[s][cs][ds][e1][mob1x][x][mt2][rc][ob1x][x][j][j][t2][cc][cc][a][n][cc][cc][cc][n][cc][cc]

[n].

S (and uh) In she run [*s][ss][ds][e0][*mob1x][x][mt1][cc][cc].

S (uh and then uh) The fella took the glass slipper

[s][ss][ds][e0][mop3xy][x][y][mt2][cc][n][cc][a][n].

S (and then) There was that hullabaloo that she was

[*s][cs][ds][e1][mob1x][x][mt2][rc][copx-p][x][-p][t2][cc][cc][n][cc][cc].

S All over there was the silence [s][ss][ds][e0][mob1x][x][j][mt2][cc][cc][ad][cc][n].

S (and that) There was (uh there was) 00:06 (there was) the two stepsister/s

[*s][ss][ds][e0][*mob1x][x][mt2][cc][cc][a][n].

S (and that) They had come to their house

[s][ss][ds][e0][mob1x][x][j][mt4][cc][cc][cc][n].

S (and that) They were try/ing on the slipper

[s][ss][ds][e0][mphop2xy][x][y][mt5][cc][cc][n].

S (and that) There was no (uh) 00:06 (no) size

[s][ss][ds][e0][mob1x][x][mt2][cc][a][n].

S (and that) The (uh) girl who the glass slipper fit/ed was (uh) about to be put on her little toe/s

[*s][cs][ds][e1][rc][op2xy][x][y][t2][mphob3*xyz][*x][y][z][mt6][cc][n][cc][cc][a][n] [cc][cc][a][n].

S (and that) She had the glass slipper [s][ss][ds][e0][ob2xy][x][y][mt2][cc][cc][a][n].

S (and) That was miracle [*s][ss][ds][e0][mcopxp][x][p][mt2][cc][n].

S (and that) They live/ed happily ever after [s][ss][ds][e0][mop2x][x][cc][ad][ad][ad].

+ tape ends

Subject 1

Narrative Sample 5

3/16/93

S I was think/ing that she had a 00:08 (she had a) 00:10 (she had) 00:13 (she had a) lot of work to do

[s][cs][ds][e2][mcxs'][x][s'][mt4][oc][ob2xy][x][y][t2][rc][ob2xy][#x][#y][t2][cc][cc][cc][cc][n][cc][n].

S She had the dish/s to do

[s][cs][ds][e1][mob2xy][x][y][mt2][rc][ob2xy][#x][#y][t2][cc][cc][n].

S The (uh) 00:03 (uh) 00:03 (the) horse/s [ns][e0][cc][n].

S (and that) there was so many thing/s that she could do

[*s][cs][ds][e1][*mob1x][x][mt1][rc][ob2xy][x][y][t3][cc][ad][a][n][cc][cc].

S (And that) there was a celebration for the, prince who was (uh) 00:03 (uh) 00:03 (uh)

[*s][cs][ds][e1][mob1x][x][j][mt2][rc][copx-p][x][-p][t2][cc][cc][n][cc][cc][n][cc]>

: 00:07

S (uh that) there was 00:11 prince who was get/ing to know the people

[*s][cs][ds][2][mob1x][x][mt2][rc][cxy][x][y][t7][cc][n][cc][cc][n].

S (and that) they were celebrate/ing this night

[s][ss][ds][e0][mop2xy][x][y][mt4][cc][cc][n].

S (and that) the two other women from the (uh) 00:03 (uh) 00:04 (the uh) 00:06 (the uh) [*ns][e0][cc][a][a][n][cc][cc]>

: 00:13

S (uh well that) there was a point where they, were, then discuss/ing (that) that there were no, maid/s, for the party

[s][cs][ds][e2][mob1x][x][mt2][rc][cxs'][x][s'][t4][oc][ob1x][x][j][t2][cc][cc][n][cc][cc][ad][cc][cc][a][n][cc][cc][n].

S (And that) they were no, way [*s][ss][ds][e0][mcopx*p][x][*p][mt2][cc][a][n].

S (And that) there was, (uh) for the (uh) 00:04 (uh, uh)

[*s][ss][ds][e0][mob1-x][-x][*j][mt2][cc][cc][cc]>

: 00:09

S I remember that there was a good witch which show/ed that there is some semblance of good in man

[*s][cs][ds][e3][mcxs'][x][s'][mt2][oc][ob1x][x][t2][*rc][cxs'][x][s'][t2][oc][ob1x][x][j][j][t2][cc][cc][cc][cc][a][n][cc][cc][cc][a][n][cc][n][cc][n].

S (and that there was uh that) there was good in all people

[s][ss][ds][e0][mob1x][x][j][mt2][cc][n][cc][cc][n].

S (So that) there was (uh uh uh) [*s][ss][ds][e0][mob1-x][-x][mt2][cc]>

: 00:10

S (That) there was good [*s][ss][ds][e0][mob1*x][*x][mt2][cc][n].

S (and that) there was people [*s][ss][ds][e0][*mob1x][x][mt2][cc][n].

S (And that) there was, a gorgeous gown and slipper/s (and) and everything

[s][ss][con][e0][mob1x][x][mt2][cc][cc][a][n][cc][n][cc][n].

S (but) she had to be back by twelve oclock

[s][ss][ds][e0][mcopxp][x][p][j][mt4][cc][a][cc][a][n].

S (And that) she was supposed to go into the very end

[s][cs][ds][e1][mcxs'][x][s'][mt3][oc][ob1x][#x][j][t2][cc][cc][cc][ad][n].

S (and uh that) there was no (uh) 00:06 (uh uh) 00:07 (there was no) excuse for her not be/ing back by twelve oclock

[s][cs][ds][e1][mob1x][x][mt2][ac][copxp][x][p][j][t3][cc][a][n][cc][cc][cc][a][n].

S (So then) there was a lovely ball [s][ss][ds][e0][ob1x][x][mt2][cc][cc][a][n].

S (and that) there was a prince who was, (uh) court/ing her

[s][cs][ds][e1][mob1x][x][mt2][rc][ob2xy][x][y][t4][cc][cc][n][cc][cc].

S (And then) there was this (uh) 00:03 (uh) man (who) whom, (uh) 00:05

[*s][cs][ds][e1][mob1x][x][mt2][*rc][cc][cc][n][cc]>

S (And that) she was told to be back by twelve oclock or that (that) he was (uh) 00:05 [*s][cs][con][pa][e1][mc2xzs'][#x][z][s'][mt3][oc][copxp][#x][p][j][t2][mcopx-p][x] [-p][mt2][cc][ad][cc][a][n][cc][cc][cc]>

S All the slip/s and, X (uh, uh, uh) [*ns][e0][cc][cc][n][cc]>

=sounds like being or bing or bean

: 00:08

S (And that) there was a knock on the door [s][ss][ds][e0][mob1x][x][j][mt2][cc][cc][n][cc][cc][n].

S (and and there was) the glass slipper remain/ed on one of those step/s [s][ss][ds][e0][mob1x][x][j][j][mt2][cc][a][n][cc][n][cc][cc][n].

S (and that) she was hurry/ed up [s][ss][pa][e0][mphob2xy][#x][y][mt5][cc].

S (uh uh) the (uh) prince told the (uh, uh, uh, uh) [*s][ss][ds][e0][mc2x-y-z][x][-y] [-z][mt2][n][cc][cc]>

: 00:12

S (Who do you, you uh) 00:04 (uh) 00:03 (call the the uh) 00:06 who do (you) you call the (uh) man who was next in line [*s][cs][wh][e1][mob3xy*z][x][y][*z][mt3][rc][copxp][x][p][j][t2][who][cc][cc][n][cc] [a][cc][n]?

S (And uh) the (uh) man was sent out to, (uh) glass slipper [*s][ss][pa][e0][mphcxy*s'][#x][y][*s'][mt5][cc][n][cc][a][n].

S (and that) the (uh) means that there is one person who was that slipper fit/3s [*s][cs][ds][e2][mc*xs'][*x][s'][mt2][ac][ob1x][x][t2][rc][copx-p][x] [-p][op2xy][x][y][t2][cc][n][cc][cc][a][n][cc][cc][n].

S (and that), that/'s the one [s][ss][ds][e0][mcopxp][x][p][mt1][cc][cc][n].

S (So then) there/'s (the uh and there's) a lot of trouble [s][ss][ds][e0][mob1x][x][j][mt1][cc][cc][n][cc][n].

S (uh and then) there the (uh) man whom the call/ed the (uh) glass slipper

[*ns][e1][rc][ob3*xyz][*x][y][z][t2][cc][cc][n][cc][cc][cc][a][n].

S (and then) there/'s the man who

[*s][cs][ds][e1][mob1x][x][mt1][*rc][cc][cc][n][cc]>

: 00:06

S (and then) there/'s the two people who were there on the XX night

[s][cs][ds][e1][mob1x][x][mt1][rc][copxp][x][p][j][t2][cc][cc][a][n][cc][ad][cc][cc][n].

=sounds like bowing

S (and the then) there was the slipper [s][ss][ds][e0][mob1x][x][mt2][cc][cc][n].

S (and) there (uh) no one fit/ed [*s][ss][ds][e0][mop2*x][*x][mt2][ad][a][n].

S (and then) there was the girl who was (uh) the maid

[s][cs][ds][e1][mob1x][x][mt2][rc][copxp][x][p][t2][cc][cc][n][cc][cc][n].

S (and) she said here is the glass slipper

[s][cs][ds][e1][mcxs'][x][s'][mt2][oc][copxp][x][p][t2][cc][ad][cc][a][n].

S (and that, that uh) no I/'m sorry [s][ss][ds][e0][mcopxp][x][p][mt1][cc][a].

S (then that) the (uh) girl took on the glove and it fit/ed

[*s][ss][con][e0][*mphob2xy][x][y][mt3][mop2x][x][mt2][cc][n][cc][n][cc][cc].

S (So then) they were happily ever X

[*s][ss][ds][e0][mcopx*p][x][*p][mt2][cc][ad][ad].

=sounds like hap

+ tape ends

Subject 1

Narrative Sample 6

3/16/93

S It was a lovely evening [s][ss][ds][e0][mcopxp][x][p][mt2][cc][cc][a][n].

S (and that) there was too many thing/s that had to be done

[*s][cs][ds][e1][*ob1x][x][mt2][rc][ob2xy][#x][y][t6][cc][ad][a][n][cc].

S (I mean, uh) dish/s had to be wash/ed [s][ss][pa][e0][mob2xy][#x][y][mt6][n].

S (and) the (uh) horse/s (and the) 00:05 (and the horses and the, uh) [ns][e0][cc][n] >

: 00:10

S (and that) there was a meeting of the town crier/s that there was to be a celebration for the men in charge of the prince

[*s][cs][ds][e1][mob1x][x][j][mt2][ac][ob1x][x][j][j][j][t4][cc][cc][n][cc][cc][a][n][cc][cc][cc][n][cc][cc][n][cc][n][cc][cc][n].

S (and that) they were invite/ed to go

[s][cs][pa][e1][mc2xys'][#x][y][s'][mt4][oc][ob1x][#x][t2][cc].

S (and that) their maid (m mary uh) Cinderella was not one of them

[s][ss][ds][e0][mcopxp][x][p][mt3][cc][n][n][n][cc][cc].

S (and that) she had too much to do

[s][cs][ds][e1][mob2xy][x][y][mt2][rc][ob2xy][#x][#y][t2][cc][ad][n].

S (So) there was a fight between the girl/s and cinderella because she was not go/ing to go [s][cs][con][e1][mob1x][x][j][mt2][ac][ob1x][x][t7][cc][cc][n][cc][cc][n][cc][n][cc][cc].

S (uh then) there was a good witch which (uh) 00:06 (which) was (uh, uh) 00:03 (that there was the good witch was uh, was) [*s][cs][ds][e1][mob1x][x][mt2][*rc][copx-p][x][-p][t2][cc][cc][a][n][cc] >

: 00:07

S (well) she arrange/ed everything the flower/s the gown the ball the glass slipper/s everything [s][ss][con][e0][mob2xy][x][y][mt2][cc][n][cc][n][cc][n][cc][n][cc][a][n][n].

S (and) she was go/ing to (uh) make it so that she could be in by twelve oclock [s][cs][ds][e1][mob2xy][x][y][mt6][ac][copxp][x][p][j][t3][cc][cc][ad][cc][cc][ad][cc][a] [n].

S (and that) she was go/ing to go and have a marvellous time [s][ss][ds][con][e0][mob1x][x][mt6][mob2xy][#x][y][mt6][cc][cc][cc][a][n].

S (and that) she did [es].

S I/'m [*s][ss][ds][e0][mcopx-p][x][-p][mt2][cc] >

S (that) she was (uh) 00:04 (uh) 00:03 (uh) 00:03 (that she was) 00:07 (that she was) [*s][ss][ds][e0][mcopx-p][x][-p][mt2][cc] >

S (and that , that) the 00:03 time pass/ed by [s][ss][ds][e0][mphob1x][x][mt3][cc][n].

S (and that) she was, (uh, uh) 00:04 (uh), not pay/ing much attention to it [s][ss][ds][e0][mop2xy][x][y][mt5][cc][a][n][cc][cc].

S (and that) she was a quarter to twelve [*s][ss][ds][e0][mcopx*p][x][*p][mt2][cc][cc][n][cc][n].

S (and that) she must leave [s][ss][ds][e0][mob1x][x][mt2][cc].

S (So then) there was the footstep/s on the, (uh) 00:05 (uh) 00:06 (uh) 00:04 step/s [*s][ss][ds][e0][*mob1x][x][j][mt2][cc][cc][n][cc][cc][n].

S (and that) she was go/ing to go to her (uh) 00:03 (uh, uh) 00:04 home [s][ss][ds][e0][mob1x][x][j][mt6][cc][cc][cc][n].

S (and that) there was the glass slipper, sit/ing on the step/s [s][cs][ds][e1][mob1x][x][mt2][ac][ob1x][#x][j][t2][cc][cc][a][n][cc][cc][n].

S (and that) the prince show/ed that, the (uh) 00:05 (the uh) 00:04 was, [*s][cs][ds][e1][mcx*s'][x][*s'][mt2][oc][cop-x-p][-x][-p][t2][cc][n][cc][cc] >

S (then) their (uh) fortune/s to be told [ns][e1][ac][mcxy][#x][y][t4][cc][n].

S (and) that is what the prince want/ed

[s][cs][ds][e1][mcopxs'][x][s'][mt1][oc][ob2xy][x][y][t2][cc][cc][cc][n].

S (and that she), he was search/ing for this woman who had a glass slipper

[s][cs][ds][e1][mphob2xy][x][y][mt5][rc][ob2xy][x][y][t2][cc][cc][cc][n][cc][cc][a][n].

S (So then), there was a, whole lot of excitement

[s][ss][ds][e0][mob1x][x][j][mt2][cc][cc][a][n][cc][n].

S (and that) the woman who (uh uh, had, uh,uh,uh) 00:04 had to give their (uh)

[*ns][e1][rc][ob3x-yz][x][-y][#z][t4][cc][n][cc][cc]>

: 00:07

S (uh then) there was the women who try/ed on the shoe/s

[s][cs][ds][e1][mob1x][x][mt2][rc][phob2xy][x][y][t3][cc][cc][n][cc][cc][n].

S (and that) there was no (uh) response [s][ss][ds][e0][mob1x][x][mt2][cc][a][n].

S (and that) the woman show/ed the, (uh showed the) glass slipper that she was, (uh)

[*s][cs][ds][e1][mcxy-z][x][y][-z][mt2][rc][copx-p][x][-p][t2][cc][n][cc][a][n][cc][cc]>

: 00:06

S (and that) she try/ed on the shoe and the shoe fit

[s][ss][con][e0][mphob2xy][x][y][mt3][mop2x][x][mt2][cc][cc][n][cc][cc][n].

S (and) that was, holiday [*s][ss][ds][e0][mcopxp][x][p][mt2][cc][n].

S (and that) they live/ed happily ever after

[s][ss][ds][e0][mob1x][x][j][mt2][cc][ad][ad][ad].

+ tape ends

Subject 2

Conversation Sample 1

S=Subject, F=Family Member

1/15/93

S (uh)^

F Did you understand it?

S Yes oh yes (uh uh uh) [ns].

S Six seven (seven <uh uh>) [ns][e0][n][n]^

F <Channel seven>?

S Seven (uh uh) Peter Jennings [*ns][e0][n][n][n].

F Yes (yes).

S <XXX>.

=impossible

F <He's on channel> seven right.

S Ok yea all right (uh uh) [ns]^

F What do you think of this program?

F Were they right?

S Yes yes [ns].

S (I uh uh) I don't know [es].

S It/'s (it's) something about it (uh uh)

[*s][ss][ds][e0][mcop*xp][*x][p][j][mt2][cc][cc][cc][cc].

S X (uh uh uh uh uh) Michigan [ns][e0][n]?

=sounds like ale

S No (uh uh uh uh uh uh) [ns]^

F Wisconsin?

S Wisconsin (Wisconsin) [ns][e0][n].

F The law <there> mhm?

S <Ok (ok)> down in the city (uh uh) L A (uh) Chicago (uh) New York (uh) [ns][e0][ad][cc][cc][n][n][n][n]^

F <The big cities>.

S <It/'s crime> [s][ss][ds][e0][mcopxp][x][p][mt2][cc][n].

F <It's different>.

S <It/'s crime and (and)> [*s][ss][ds][e0][mcopxp][x][p][mt2][cc][n][cc]^

F Mhm.

S (And all sorts of stuff uh uh).

S World (world uh) I don't know [*s][ss][ds][e0][mcx-y][x][-y][mt3][n][cc].

S I (I) understand (uh uh) [es].

S (Now uh) pull together (uh uh uh uh uh uh) Dallas and (uh uh) XX (uh uh) <Florida> (Florida) [*s][ss][ds][e0][mob2-xy][-x][y][mt1][ad][n][cc][n].

= impossible

F <Los Angeles> mhm?

S Big city (big city) [ns][e0][a][n].

F <The problem is (is) more than>^

S <Big city> [ns][e0][a][n]^

F <Mhm>.

S <(uh uh pr uh)> Arizona/*'s (a i uh uh uh) far out [*ns][e0][n][ad][cc].

S (uh uh uh uh uh) Colorado is minor [s][ss][ds][e0][mcopxp][x][p][mt2][n][a].

S (uh uh uh wea uh no uh) Far away (uh) [ns][e0][ad][ad]^

F You mean Washington <and some of those states>?

S <Yea (yea)> [ns].

F They're not as severe <as>^

S <Yea (uh uh)> [ns].

F That's right.

F It's when you get to the big cities <is when it get worse then> you can't control it.

S <Yea (uh uh)> [ns].

S (Mind you uh uh now uh) all encompassing [ns][e0][cc][a].

S (uh uh uh now uh) Big city [ns][e0][a][n]?

S I don't know [es].

S (uh)^

F I think you need more programs <maybe they're trying to say> than in the rural.

S <Yea (uh uh)> [ns].

S Yea (uh uh) [ns].

F Mhm.

S (Now uh uh)^

F What'd you think about the wellfare?

F She was saying something about <welfare>.

S <Yea (i i i i)> [ns]^

F Some of those mothers you know.

S I don't know [es].

S (i i i)^

F It's hard if you're only one parent trying to raise kids.

S I know [es].

S Two and three <and four> and five (uh uh uh st) [*ns][e0][n][cc][n][cc][n][cc][n].

F <And four>.

S (Mind you uh uh d d d uh uh) right here (right here) [ns][e0][a][ad].

S (uh uh) On the city X [ns][e0][cc][cc][n].

=sounds like dee

S (uh uh) Stroke [*ns][e0][n].

S (uh) Peter and I and (uh) Dee divorce/ed (ok ok)

[s][ss][con][e0][mop2x][x][mt2][n][cc][cc][cc][n].

F Mhm.

S (and uh uh uh) Separate way/s [ns][e0][a][n].

S (uh uh) Own problem [*ns][e0][cc][n].

S (uh uh uh uh uh uh uh) Policeman [*ns][e0][n].

S (uh) Stroke (i i) [*ns][e0][n].

S It/'s gone (i i gone) [s][ss][ds][e0][mob1x][x][mt3][cc].

F <Mhm died mhm>.

S <Yea> die/ed [*s][ss][ds][e0][mob1-x][-x][mt2].

S <Five kid/s> [ns][e0][a][n].

F <Five kids mhm>.

S <Five kid/s> [ns][e0][a][n].

F <It becomes harder> when somebody <else> has a family and they're the only one who has to take care of the children.

S <Yea yea> [ns].

S Family [*ns][e0][n].

F Yea you have to have support.

S (i i uh uh uh) You and you and you and you and you [ns][e0][cc][cc][cc][cc][cc][cc][cc][cc][cc].

S (uh uh) New York and L A and everybody/*'s a problem (a problem) [*ns][e0][n][cc][n][cc][cc][cc][n].

F It's harder when (uh) if you have two parents and then if just one parent^

S Yea [ns].

F has to take care of it then it becomes twice as hard.

S I know [es].

S (i i) I understand [es].

F Mhm.

S (uh uh uh uh) one kid two kid/s I understand [*s][ss][ds][e0][mcx-y][x][-y][mt2][a][n][a][n][cc].

S Five kid/s (uh) [ns][e0][a][n]^

F And as they get older it gets harder.

S (Mind you uh uh) a XX [*ns][e0][cc].

=sounds like baluse

S (and uh uh) I don't care (uh uh) [es].

F Mhm.

S (uh) Problem/s (uh uh) [*ns][e0][n]^

F They multiply.

S (uh uh) Multiply (multiply) and multiply and on and on and on (uh uh)

[*s][ss][con][e0][mob1-x][-x][mt1][mob1-x][-x][mt1][cc][cc][cc][cc][cc][cc][cc].

F So who's to blame?

S I don't know [es].

S (I uh uh) me (uh uh uh) [ns][e0][cc].

F Just blame everybody and nobody.

S Yea (uh) nobody [ns][e0][cc].

S (uh uh now uh uh uh) Different thing/s [ns][e0][a][n].

+tape ends

Subject 2

Conversation Sample 2

S=Subject, F=Family Member

1/15/93

S (uh is) Is (uh) Peter [*s][ss][yn][e0][mcop-xp][-x][p][mt1][n]?

F Yea.

S Yea (uh) right there [ns][e0][ad][ad].

S (uh uh uh uh classroom) Old classroom (uh uh uh) mingle (uh)

[*s][ss][ds][e0][mop2-x][-x][mt1][a][n]^

F It's open.

S Yea [ns].

F An open classroom?

S Open class/*'s (uh) rigorous (rigorous da da da) [*ns][e0][a][n][a]^

F That's what you had.

S Yea [ns].

F Mhm.

S (uh uh uh) Steady (uh) whiping (uh uh) [ns][e0][a][n]^

F Oh they don't use a whip on you.

S No [ns]!

F They didn't beat you.

S No [ns]!

F <XXX>.

S <Yea> I understand [es].

S (uh uh uh now uh uh uh now uh uh uh) Classroom/*'s dull (dull uh dull uh)

[*ns][e0][n][a]^

F But its^

S <Peter> [ns][e0][n]^

F <teacher> has to be <interesting too>.

S <Mind (mind)> yea (uh) [*ns][e0][n].

F Mhm.

S Classroom (uh) Linda [*ns][e0][n][n]?

S <Exactly (exactly ok)> (uh uh) [ns][e0][ad].

F <Yea I know yea I understand> mhm.

S (uh uh)^

F The teacher has to bring the <materials and she has to be> energetic.

S XXX.

=impossible

F And it makes the kid <interested> in what he's doing.

S <Yea yea> [ns].

S Exactly (ok) [ns][e0][ad].

S (uh uh) In the city crime and (uh uh) [*ns][e0][cc][cc][n][n][cc]>

S I don't want to [*s][cs][ds][e1][mcx*s'][x][*s'][mt3][oc][cc].

S (uh uh) Punk/s [ns][e0][n]^

F Well that comes from <home too>.

S <Hold on> <(hold on)> [s][ss][i][e0][mphob1x][#x][mt2].

F <Don't blame> the teacher.

S Hold on [s][ss][i][e0][mphob1x][#x][mt2].

S (uh uh uh) In the city suburb/s (uh uh) collar burn school (uh uh) around the city [*s][ss][ds][e0][mob2*xy][*x][y][j][j][mt1][cc][cc][n][n][n][n][cc][cc][n]^

F Maybe smaller schools too?

S (uh) I (uh uh) in the city [*ns][e0][cc][cc][cc][n]^

F <It starts at home>.

S <Black (black ok)> <(ok)> [ns][e0][a].

F <But> they have a hard life.

S (uh uh XX) Black white (white) [*ns][e0][a][a].

=sound like they are

S (In the) XX in the middle (uh c uh uh ca uh) around the (uh uh uh uh) black and white [ns][e0][cc][cc][n][cc][cc][n][cc][n].

=sounds like minis

S (i i i uh uh)^

F I don't think color has to do with it.

F I think it's just home life sometimes is not <very>^

S <Yea> [ns].

F As you were saying before the mothers have four or five kids all by herself.

S Yea [ns].

F (What) how's she going to divide herself and yet have a nice home have the kids in school <no matter> who she is?

S <Work/ing> two job/s [*s][ss][ds][e0][*mop2-xy][-x][y][mt2][a][n].

F <That's right>.

S <(uh uh)> Work/ing (uh uh) <ma> [*s][ss][ds][e0][*mop2-x][-x][mt2][n].

F <You put too much> on that mother you know.

S (uh uh uh uh uh uh uh uh) Peter and I (uh uh) tense [*ns][e0][n][cc][cc][a].

S (uh uh uh) Hold my (uh) crime in the city [*s][ss][ds][e0][mob2-xy][-x][y][j][mt1][cc][n][cc][cc][n].

S (uh uh uh) Stick them up [*s][ss][ds][e0][mphob-xy][-x][y][mt2][cc].

S (uh uh uh) Gun/s and knive/s (uh) [ns][e0][n][cc][n]^

F They come to school prepared.

S Yea (yea) prepare/ed [*s][ss][ds][e0][mc-x-y][-x][-y][mt2].

S (uh uh uh uh uh uh) Corner (uh) policeman (policeman) [*ns][e0][a][n].

S (uh uh di uh) Go/ing out [*s][ss][ds][e0][*mob1-x][-x][mt2][ad].

S (uh) Metal detector <(metal detector)> (uh) [*ns][e0][a][n].

F <XXX>.

=impossible

F Did you ever believe that would have happened?

S Yea I (I) can/n't believe it [s][ss][ds][e0][mcxy][x][y][mt3][cc][cc]!

S (uh uh uh i) Back again (uh) X metal detector (uh) [*ns][e0][ad][ad][a][n]^

=sounds like er

F So all the new things that are out there aren't going to help you.

F Kit is not ready <to learn>.

S <I will> tell you [s][ss][ds][e0][mop3xyz][x][#y][z][mt2][cc][cc].

S (uh uh uh uh) Suburb/'s far away [*s][ss][ds][e0][mcopxp][x][p][mt2][n][ad][ad].

S (uh uh) Peace and love (and uh) it/'s <(it's) a> [*s][ss][ds][e0][mcopx-p][x]
[-p][mt2][n][cc][n][cc][cc]^

F <XX>.

=impossible

S No (no) it/'s [*s][ss][ds][e0][mcopx-p][x][-p][mt2][cc]^

F More quiet?

S It/'s quiet (uh uh) in the city (uh uh) along the (uh uh) white and black
[*s][ss][ds][e0][mcopxp][x][p][j][*j][mt2][cc][a][cc][cc][n][cc][cc][a][cc][a].

S (and uh uh in) In the city (uh) black [*ns][e0][cc][cc][n][a].

S <(I) I can'/nt believe it> [s][ss][ds][e0][mcxy][x][y][mt3][cc][cc].

F <I don't think XX>.

=sounds like it's just there

S All together [ns][e0][cc][ad].

F <And don't forget the quality of the big schools too>.

S <(i i all)> All together [ns][e0][cc][ad].

F Mhm.

S (uh uh uh) Mingle (mingle mingle uh) black and white (black and white uh)

[*s][ss][ds][e0][mop2-x][-x][mt1][a][cc][a].

+ tape ends

Subject 2

Conversation Sample 3

S=Subject, F=Family Member

2/15/93

S (uh).

F You want to talk about the video?

S (uh) Ok [ns].

S (Now uh uh) fragrance (uh uh) lotion (uh uh lotion uh by the way uh uh lotion) in (uh uh uh uh uh woman ok) women [*ns][e0][n][n][cc][n].

F Ok.

S (ok uh uh) Lotion (ok) [ns][e0][n].

F Hand lotion?

S Yes [ns].

S (uh) Hand (uh) creme and (uh uh uh uh and uh uh in the morning) early in morning spray on (ok) [*s][ss][ds][e0][mphob2-x-y][-x][-y][j][mt2][a][n][cc][ad][cc][n].

F Mhm.

S (uh uh)^

F Women use a lot <more>^

S <Yea> (yea) [ns].

F than men?

S (I I) I understand [es].

S (i i i) Noon and nightime (spray i i) different spray [*ns][e0][n][cc][n][a][n].

F <Men use>^

S <(uh uh come on) Wait (uh uh)> [s][ss][i][e0][mob1x][#x][mt1]^

F <Men use it>.

S <(uh uh uh)> Hold it (hold it hold it) [s][ss][i][e0][mop2xy][#x][y][mt1][cc].

F Men use it.

S I can/n't believe it [s][ss][ds][e0][mcxy][x][y][mt3][cc][cc].

S (uh uh) Early in the morning and in nightime (uh) which one it is [*s][ss][wh][e0][mcopx*p][x][*p][j][j][mt2][ad][cc][cc][n][cc][cc][n][which][n][cc]?

S (uh uh and uh) special spray all (uh) [*ns][e0][a][n][cc]^

F In the house too?

S Yea (I I) I can/n't (b) [*ns][e0][cc]^

F Yea <everything has to be X>^

=sounds like sprayed

S <(three) four time/s> [ns][e0][a][n].

S (I I I) Come on (uh uh uh) [s][ss][i][e0][mphob1x][#x][mt2]^

F Everything you touch is sprayed <smells>.

S <(and)> (and and uh uh and) Cough/ing (coughing) and (uh) spray (uh) different thing/s [*s][ss][con][e0][*mob1-x][-x][mt2][mob2-xy][-x][y][mt1][cc][a][n].

S (uh) You beautiful [*ns][e0][cc][a].

S I/*'m cough/ing [*s][ss][ds][e0][*mob1x][x][mt2][cc].

S (uh uh)^

F Sometimes you're allergic to this.

S Yea (I I) I/*'m (uh uh) cough/ing and (uh) allergic [*s][ss][ds][e0][*mob1x][x][mt2][cc][cc][a].

=allergic pronounced relergic

F Allergic.

S (uh uh) I can/n't (beli) <believe it> [s][ss][ds][e0][mcxy][x][y][mt3][cc][cc].

F <You think> (you think) it has allergies?

F People get allergies^

S Oh yea [ns].

F from it?

S Definitely (definitely) [ns][e0][ad]!

S (uh uh uh uh uh by the way uh) Lotion/*'s plain (uh uh uh uh lotion oh ok) [*ns][e0][n][a].

S (uh) Read direction/s [*s][ss][i][e0][mob2xy][#x][y][mt2][n].

S <Read> [*s][ss][ds][e0][mob2-x-y][-x][-y][mt1]^

F <The labels>?

S Yea read direction/s [*s][ss][ds][i][e0][mob2xy][#x][y][mt2][n].

S (uh)^

F See what's inside?

S Yea see what/*'s (uh) <inside> [*s][cs][i][e1][mcx*s'][#x][*s'][mt2][oc][cc][ad].

=what's inside pronounced wet eh side

F <Ok>.

S (ok uh uh)^

F Lot of it is alcohol too.

S Alcohol <(alcohol)> [ns][e0][n].

F <Yea>.

S (and) I can/n't (b) [*ns][e0][cc]>

S Is faint and (uh uh uh) feel good [*s][ss][con][e0][mcop-xp][-x][p][mt1][mc-xp] [-x][p][mt1][a][cc][a].

S (uh <now>)^

F <That's> what they say.

F It makes you better.

S (oh g oh g oh) Hold it [s][ss][i][e0][mop2xy][#x][y][mt2][cc].

S (uh uh) Infant (uh five ten year/s old uh ten years old uh five ten) thirteen year/s old a small/er group [*ns][e0][n][a][a][n][cc][a][n].

S (uh uh five ten thirteen) Twenty different group (<different group>) [*ns][e0][a][a][n].

F <The older you get the more you use>?

S (uh uh five ten) Fifteen (uh uh uh) spray/ing (and all sorts of stuff)

[*s][ss][ds][e0][*mob2x-y][x][-y][mt2][n].

=spraying pronounced spaying

S Old/er (uh) [ns][e0][a]^

F They use more?

S Yea (i i) much old/er (uh) X [ns][e0][ad][a].

=sounds like wife

S (uh uh) How come [es]?

S I (I i i i) [*ns][e0][cc]^

F That's the way they sell it too.

F Make you feel good.

F Make you smell good.

F (You know) anything to sell their product (you know).

F It's a little psychology they <use>.

S <I know> [es].

S (I uh uh) I [*ns][e0][cc]^

F Yea.

S (uh uh uh)^

F Same thing with smoking.

F They make you think smoking is very fashionable you know.

S Boy/s [ns][e0][n].

F You should know.

S I (I) know [es].

S (I) Tell me about (uh) Josie [s][ss][i][e0][mop3xyz][x][#y][z][j][mt2][cc][cc][n].

S (uh uh uh uh uh no no uh uh uh uh uh uh) Sam and (uh) Della <(Della)>

[ns][e0][n][cc][n].

F <Oh Della>.

S (uh) Smoke/ing (smoking smo uh uh) [*s][ss][ds][e0][*mob2-x-y][-x][-y][mt2].

F The smell.

S Yea [ns].

F <Mhm>.

S <Smoke/ing> (uh uh) [*s][ss][ds][e0][*mob2-x-y][-x][-y][mt2]^

F It didn't do her any good huh?

S Yea (i i i) do her any good [*s][ss][ds][e0][mob2-xy][-x][y][mt1][cc][cc][a].

=do her any good pronounced goo her in a good

S (uh uh uh uh uh uh uh uh uh uh uh) Mike Danorma/*'s (n norma <i i> different) totally different (uh) reverse (uh spray uh) cheap spray [*ns][e0][n][n][ad][a][a][a][n].

F <Mhm>.

F XX the <cheap spray>?

=sounds like she used

S <(y y y) Yea> (uh uh) you (i) [*ns][e0][cc]^

F Me too?

S (y y y) Yea (yea) different [ns][e0][a].

F Oh.

S Grace/*'s different [*ns][e0][n][a]^

F Mhm.

S hair spray/s [ns][e0][a][n].

S <(Differ)> ^

F <I don't> use hair spray.

F I don't use hair spray.

S No no no (uh uh uh) X (uh uh uh uh uh) cheap [ns][e0][a].

=impossible

F Oh smells cheap <XX>?

=impossible

S <Yea (yea yea)> (ok) [ns].

F But still it's spray.

+ tape ends

Subject 2

Conversation Sample 4

S=Subject, F=Family Member

+ 2/15/93

S (ok) <(uh) I> [*ns][e0][cc]^

F <You're> the one that smoked.

S <(uh)>^

F <Yea>.

S I (uh I) truth (truth) and (uh) justice [*ns][e0][cc][n][cc][n].

S It <(uh)> [*ns][e0][cc]^

F <When> did you start smoking?

S (uh uh) Ten [ns][e0][n].

F Ten.

S Ten [ns][e0][n].

F How did you start?

S (uh uh)^

F Were you hanging around <with>^

S <No no> no [ns].

S (uh uh uh uh) Alley (alley) [*ns][e0][n]^

F In the alley?

S Yea (uh uh) sneak/ing around (uh) nobody else (uh) [*s][ss][ds][e0][*mop2-x]
[-x][mt2][cc][cc][cc]^

F Was smoking?

S Smoke (ok) [*s][ss][ds][e0][mop2-x][-x][mt1].

S Big smoke [ns][e0][a][n].

S Oh boy [ns]!

F Big man huh?

S Yea (man uh) big man (uh uh ok) [ns][e0][a][n].

S (uh) Over year/s (uh uh uh uh uh uh ten eleven twelve) thirteen (uh) one pack a day [*ns][e0][cc][n][n][a][n][cc][n].

S (uh uh uh)^

F <XXX>.

=impossible

S <(y y y) Yea> ok [ns].

S (uh uh r five ten) Fifteen two pack/s a day (two packs a day two packs a day) ok [*ns][e0][n][a][n][cc][n].

S (uh) And [*ns][e0][cc]^

F More <or more>.

S <(m)> (uh) Three pack/s a day in (uh uh uh uh uh uh five ten fifteen twenty twenty twenty five) thirty [*ns][e0][a][n][cc][n][cc][a].

S Oh chaotic [ns][e0][a]!

S <(uh) Smoke/ing> (uh uh) [*s][ss][ds][e0][*mop2-x][-x][mt2]^

F <Yea>.

F Then when you got <your> stroke you stopped^

S <Yea> (yea) [ns].

F because you had to <stop>.

S <Yea> it/'s (it's k) cold turkey [s][ss][ds][e0][mcopxp][x][p][mt2][cc][a][n].

S No no no wait [s][ss][i][e0][mob1x][#x][mt2]!

S (uh) Ray (Ray) [ns][e0][n]^

F Mhm.

S (ok uh uh uh) Ray [ns][e0][n]^

F Don't <smoke X> ^

=impossible

S <Free> (uh free ok) [ns][e0][a].

S (now) Think it a message (ok) [*s][cs][ds][e1][mc-x*s'][-x][*s'][mt1][oc][cc][cc][n].

S Andy (Andy two year/s) three year/s cold turkey <(ok)> [*ns][e0][n][a][n][a][n].

F <Mhm>.

S (uh uh) Long and long a <process> [*ns][e0][a][cc][a][cc][n]^

F <Yea>.

S <Process> [*ns][e0][n]^

F <It takes> long.

S <Yea> (ok) [ns].

F <Right>.

S Carla (uh yea i i) smoke/ing (smoking) smoke

[*s][ss][ds][e0][*mop2xy][x][y][mt2][n][n].

F <Denise is too>.

S <(oh oh no uh uh)> Dee same thing [ns][e0][n][a][n].

F It gets more <and more and more>.

S <(ok)> Ok [ns].

S (now uh) Different stroke/s [ns][e0][a][n].

S (uh uh uh uh uh uh) Men and [*ns][e0][n][cc]^

F Women?

S Women totally [*ns][e0][n][ad]^

F Different?

S Yea totally opposite [ns][e0][ad][a].

=opposite pronounced opsisit

F It's harder for women to stop you think?

S (and uh) Grace/*'s smoke fiend (fiend) <(ok)> [*ns][e0][n][a][n].

F <Yea> she is.

S (and) Fiend (ok) [*ns][e0][n].

S (uh) Two pack/s a day [ns][e0][a][n][cc][n].

S (uh uh uh uh)^

F That's a lot.

S Yea (yea) I know [es].

S (uh) One pack a day (one pack a day) and a half [ns][e0][a][n][cc][n][cc][a][n].

S (uh) No smoking (ok) [ns][e0][a][n].

S Deathly [*ns][e0][ad].

S Over the year/s (uh uh) try it (uh uh uh uh) each day (uh) [*s][ss][ds][e0][mop2-xy][-x][y][j][mt1][cc][cc][n][cc][cc][n]^

F <Do you ever feel like>^

S <Calm down> (calm down) [s][ss][i][e0][mphob1x][#x][mt2].

F Do you feel like you want to smoke <again>?

S <No> [ns].

F No you don't have the feeling.

S No <(no)> [ns].

F XX funny?

=impossible

S This is funny [s][ss][pq][yn][e0][mcopxp][x][p][mt2][cc][a]?

F Because lot of times you do.

F You feel like you want to start again.

S No (uh) [ns]^

F You've been away from it a long time.

F What six years?

S (five) Ten year/s (ten years) [ns][e0][a][n].

F It's been ten years?

S Yea [ns].

S I (I) cold turkey <(uh uh uh)> [*ns][e0][cc][a][n].

F <Well you're lucky>.

S (uh uh now uh uh)^

F You feel better?

S Oh yea [ns].

S (uh uh) Totally opposite [ns][e0][ad][a].

=opposite pronounced opsisit

F Mhm.

S Totally (uh) [ns][e0][ad]^

F Sometimes you <wonder why> ^

S <XXX>.

=impossible

F Why did you start?

F <What> made you start?

S <I> don't know [es].

S I don't know [es].

F Well Paul is a heavy smoker and <that is always in front of you>.

S <(y y yea ok ok)> (ok uh ok uh now uh) Think <(uh)> [*s][ss][ds][e0][mc-x-s']

[-x][-s'][mt1]^

F <It> was easy to get <XX> ^

=impossible

S <No no no> no [ns].

F You snuck a X>

=sounds like lie

F You snuck around a lot.

S No (uh uh) no no I (j uh uh) [*ns][e0][cc]>

S (see uh) Speech impediment and (uh) nobody around [*ns][e0][a][n][cc][cc][cc].

S Dee and (uh uh) stroke and (uh) hospital [*ns][e0][n][cc][n][cc][n].

S (uh) Three (uh) month/s (three months three months) [ns][e0][a][n].

S (uh) Cold turkey [ns][e0][a][n].

F <Yea>.

S <(uh uh uh)> XXX <(XXX)>.

=sounds like called the court

F <Yea that's the best thing> that happened^

S (uh uh) Smoke/ing no no definitely not [*s][ss][ds][e0][*mop2-x][-x][mt2][ad][ad].

S (uh uh)^

F <You know> what's good for you.

S I (I I uh uh) can/n't believe it [s][ss][ds][e0][mcxy][x][y][mt3][cc][cc].

+ tape ends

Subject 2

Conversation Sample 5

S=Subject, F=Family Member

3/12/93

S Yes (uh) [ns].

F Your mom worked.

S No <no I> [*ns][e0][cc]^

F <I worked>.

S I know [es].

F <I>^

S <I> understand [es].

S (uh uh) It/'s hard to imagine

[s][cs][ds][e1][mcopxp][x][p][mt2][ac][cxy][#x][y][t2][cc][a].

F Yea ok.

F <That's why I didn't have them>^

S <(uh) Monday tuesday> wednesday thursday friday (uh) monday tuesday

wednesday thursday [ns][e0][n][n][n][n][n][n][n][n][n].

F Mhm.

S (ok) Friday and saturday and part of the sunday me

[*ns][e0][n][cc][n][cc][n][cc][cc][n][cc].

F You what Peter?

S (o ok now now uh) Monday tuesday, (uh) [ns][e0][n][n]>

: 00:05

S I don't know [es].

S Is something (uh) fishy [*s][ss][ds][e0][mcop-xp][-x][p][mt1][n][a].

S (uh uh),^

F You don't like it?

F Part time work and uhˆ

S No I (d) <definite> [*ns][e0][cc][a]ˆ

F <The best> thing is the mothers stay home and watch the kids <for five days>.

S <(uh uh uh)> Which a way I want [*s][ss][ds][e0][mcx-y][x][-y][mt2][cc][cc][n][cc].

S (uh stroke ok uh) Stroke (ok) [ns][e0][n].

S <So> what [es]?

F <Mhm>.

S (uh) Monday tuesday wednesday thursday friday saturday sun all the day/s of the week (ok) [ns][e0][n][n][n][n][n][n][n][cc][cc][n][cc][cc][n].

S (uh r) Reverse [ns][e0][a].

S (uh now uh) divorce and (i i), all alone [*ns][e0][n][cc][ad][a].

F You want <to have them in the daytime everyday>?

S <(i i yea yea)> All alone [ns][e0][ad][a].

S (uh uh uh) Sunday monday tuesday wednesday thursday (uh) all alone <(all alone)> [*ns][e0][n][n][n][n][n][ad][a].

F <Mhm>.

S I (uh s s s) [*ns][e0][cc]ˆ

F He's got to go to school.

S (I understand) I understand (uh uh I I uh) perfectly clear [*s][ss][ds][e0][mcxy][x][#y][mt2][cc][ad][a].

S (uh)ˆ

F That she could be reverse it where you have him monday tuesday wednesday thursday and then she has him friday saturday and <sunday>?

S Yes [ns].

S (i i) <All (uh uh)> [ns][e0][a]ˆ

F <Reverse it>?

S (i i) <(uh uh uh)>^

F <Well>.

S (uh), Hold on <(hold on)> [es].

F Well <that's not what>^

S <(i i)>(I) I know [es].

S I understand (ok ok) [es].

F This is about people who have to work.

S (I) <I> [*ns][e0][cc]^

F <I know>.

S Does <somebody> [*ns][n]^

F <There is> no good child care <for these kids>.

S <I (I)> [*ns][e0][cc]^

F That's what <the real problem is>.

S <I know> [es].

S <I understand> [es].

F <Women have to work>.

S (uh uh) Shot [*s][ss][ds][e0][mob2-x-y][-x][-y][mt2].

S (uh uh uh uh) Gun/s and knife/s [ns][e0][n][cc][n].

S (and uh) Everything about it (i) is, [*s][ss][ds][e0][mcopx-p][x][-p][mt1][n][cc][cc]>

S (I uh) Something (uh uh) nice perfect (uh uh is is) is (uh, uh uh uh) time [*s][ss][ds][e0][mcopxp][x][p][mt1][n][a][a][n].

S (oh ok uh it uh working in a job) work/ing in a job [*s][ss][ds][e0][*mob1-x][-x][*j][mt2][cc][cc][n].

S (uh uh uh uh uh now uh) Construction and (uh uh uh) work/ing in a house [*ns][e0][*ob1-x][-x][j][mt2][n][cc][cc][cc][n].

S (and uh uh uh) Apartment (uh uh uh) construction [ns][e0][a][n].

S (and uh) 00:05 (uh uh uh), Carpenter and everything [*ns][e0][n][cc][n].

S (uh) Share/ing (uh uh ok) [*s][ss][ds][e0][*mob2-x-y][-x][-y][mt2].

S (uh uh uh) Man and woman (uh uh s) same one [*ns][e0][n][cc][n][a][n].

S (uh) Work/ing at a job I/*'m through [*s][ss][con][e0][*mob1-x]

[-x][j][mt2][cc][cc][n][cc][ad].

S (uh uh uh now uh uh) Eat/ing in a house and (uh) job [*s][ss][ds][e0][*mop2-x]

[-x][j][mt2][cc][cc][n][cc][n].

S (and uh uh) I [*ns][e0][cc]^

F Well^

S I don't know [es].

S (I) I [*ns][e0][cc]^

F Well the thing this was that if they had child care for the for the children the small>

F We're talking about small children and then parents women go to work part time.

F It's hard.

F <It's hard> especially if you're a single all by yourself.

S <(i i)>^

F You know it's hard.

S I [*ns][e0][cc]^

F <Yea>.

S <I> don't know (I don't know) [es].

S (it's) It/'s, the (ei) eighty/s [s][ss][ds][e0][mcopxp][x][p][mt2][cc][cc][n].

S In the ninety/s (uh) it/'s <divorce>

[s][ss][ds][e0][mcopxp][x][p][j][mt2][cc][cc][n][cc][n].

F <It's getting worse>.

S Divorce <divorce> divorce divorce [ns][e0][n][n][n][n].

F <Yea I know>.

S (uh) All the time [ns][e0][cc][cc][n].

F I know.

S (uh and uh) Move it (uh uh) half (half) [*s][ss][i][e0][mop2xy][#x][y][mt2][cc][n].

F <I know>.

S <(uh uh)> (uh I bet you uh, uh) I bet you (uh uh weird) very weird (uh uh) [*s][ss][ds][e0][mcxy*s'][x][y][*s'][mt2][cc][cc][ad][a].

F Well what's the answer?

F Who <knows the answer>?

S <(oh i i)> (n n no uh uh uh) A lawyer a doctor and the chief (uh uh uh w) will (there) there be [*s][ss][yn][e0][mcop*x*p][*x][*p][mt2][cc][n][cc][n][cc][cc][n][ad].

S (uh uh uh) A (l) lonely (uh uh) 00:04 [*ns][e0][cc][a]^

F <Children> need support.

S Ok [ns].

F <They need s>^

S <Call home> [s][ss][i][e0][mob2xy][#x][y][mt2][n].

S (uh), Peter and me and Dee get home (uh) [s][ss][con][e0][mphob1x][x][mt3][n][cc][cc][cc][n][ad]^

F <It don't work that easy>.

S <(uh I I I I)> I know [es].

F <It don't work that easy>.

F <Yea mhm>.

S I understand [es].

+ tape ends

Subject 2

Conversation Sample 6

S=Subject, F=Family Member

3/12/93

F Want to start then?

S (uh) 00:05 You [ns][e0][cc].

F No I know about magnet schools <because I taught>.

S < I know> (I I know) [es].

F <Mhm>.

S <I understand> [es].

S (uh) Magnet school (uh) <(uh)> [ns][e0][a][n]^

F <(uh)> Sometimes under there.

S How come [es]?

S I <(I I)> [*ns][e0][cc]^

F <Well>^

S I (I) [*ns][e0][cc]^

F only a few kids get to go and then the magnet school has more money.

F Sort of like the prime.

F And why not have all the schools?

F Why magnet?

F Why not teach the teachers to do better?

S (uh) High school [ns][e0][a][n]?

F You have to start at a grammar school level.

S Grammar school [ns][e0][a][n]^

F <Yea like X school's> a nice <school>.

= X sounds like someone's name

S <level> [ns][e0][n]?

S <Yes> oh definitely [ns][e0][ad].

F Mhm.

S In the city (uh uh knifes uh uh uh uh uh uh) knife/s <and (uh uh)> [*ns][e0][cc][cc][n][n][cc]^

F <But burns school is good> because the parents come and they help and they're part of the school.

F But some of those others are not.

S I know [es].

S I understand [es].

S (uh uh) Knife/s and (uh) <(i i)> [*ns][e0][n][cc]^

F <But that stems from the home>.

S (uh uh uh uh uh) Knife/s and <(uh)> [*ns][e0][n][cc]^

F <Sure>.

S (but uh uh uh) Gun/s and (uh uh) break/ing in and <(uh)> [*ns][e0][*mphop2-x][-x][t2][n][cc][cc]^

F <Well> you can't blame the teachers of <the school for that>.

S <(how come)> How come [es]?

S <How> [*ns][e0][ad]^

F <Where> does it start?

S No no no [ns].

S (uh) How come (uh), one level (all along there) all along there (uh ok) [*ns][e0][cc][cc][a][n][ad][ad][n].

S (now uh) Low/er (uh uh uh) gun/s and knife/s and (i uh) high/er the executive [*ns][e0][a][n][cc][n][cc][a][cc][n].

S (uh uh uh, how come) How come (uh) [es]?

F I don't understand.

S How <come> [es]?

F <What> are you saying?

S (ok) 00:03 (uh level ok) Level [*ns][e0][n].

F Everyone starts at the <same> level?

S <(yea)> Yea [ns].

F And why do some go^

S How come [es]?

F Don't you think it starts when they're home before they go to school?

S (uh) Parent/s [ns][e0][n]?

F Sometimes there aren't parents.

S I know [es].

S (uh uh uh) <(uh)>^

F <No> one there to teach them?

S (uh) Teacher [ns][e0][n]?

S (uh uh) Gun/s and knife/s and (uh) <(uh)> [*ns][e0][n][cc][n][cc]^

F <Well that's> what they see every day.

S I know [es].

S (uh uh) Drink/ing and (uh uh uh uh) drug/s and <knife/s> [*s][ss][con][e0]
[*mop2-x][-x][mt2][cc][n][cc][n]^

F <Yea>.

S (and uh) Every kind of <stuff> [ns][e0][cc][n][cc][n].

F <Yea>.

S (and uh uh, now uh)^

F It's getting worse.

S (yea) Yea I know [es].

S I understand [es].

S (uh, uh), How come [es]?

S (i i i)>

: 00:09

S Yea I (I I) 00:03 [*ns][e0][cc]^

F It's hard.

F <There's no an>^

S <Yes> [ns].

F <There's no answer>.

S <Yes uh uh uh m> [ns]^

F <There's> not one answer to <to solve the problem>.

S <Yea mhm> [ns].

S Gosh [ns].

F Well it's hard subject.

S Hard subject <(uh)> [ns][e0][a][n].

F <Mhm>.

S (uh, ma by the way uh) Moo on (uh), five ten fifteen twenty (uh) peter (uh golden years) golden year/s gone (uh uh) was out (uh) adult <(adult)> [*s][ss][con][e1][*mob1*x][*x][mt2][cop-xp][-x][p][t2][n][cc][n][n][n][n][n][a][n][a][n]

F <He becomes an adult>?

S <Yes> [ns].

F <Yea>?

S (and uh) Paul and andrew same thing [ns][e0][n][cc][n][a][n].

S (uh uh)^

F But they're going to better schools though.

S I don't know [es].

S I really don't know [es].

S (uh)^

F You won't know until they really get on their own.

S (I) I know [es].

S (but uh uh)^

F Depends on how you use what you learn.

S Yes [ns].

F <Mhm>.

S <Yes> [ns].

S (uh uh) Work/ing and (uh uh) study hard and (uh, uh uh uh) north south east (w) west (uh uh) across the city (uh uh uh uh uh) group (uh) oak brook (oak brook) [*s][ss][con][e0][*mop2-x][-x][mt2][mop2-x][-x][mt1][cc][ad][cc][n][n][n][n][cc][cc] [n][n][n].

S Executive [ns][e0][n]?

S No [ns].

S No no no (i i uh) north (ok) [ns][e0][n].

S (i i uh) Same thing [ns][e0][a][n].

S (i i i uh)^

F Sometimes it's the kid himself that likes to learn you know.

F But you got to motivate them though.

F You got to push them to learn.

S Yes [ns].

S (uh uh) Sport/s (uh uh) [ns][e0][n]^

F <That's one way>.

S <(i i i)> (uh focused) Focus/ed [*s][ss][ds][e0][*mob2-x-y][-x][-y][mt2].

F Mhm.

S A (mind) mind [ns][e0][cc][n].

F That's right.

S <uh> Drug and violence and (all) all aside and sport/s [*ns][e0][n][cc][n][cc][ad][ad][cc][n].

S (uh) In the middle even tall/er (uh i) <(i i)> [*ns][e0][cc][cc][n][ad][a]^

F <Either way>?

S Yes (i i uh) fine line [ns][e0][a][n].

S <(uh)>^

F <Well> it is a <fine line>.

S <I know> [es].

S I understand [es].

S (uh uh) <(uh)>^

F <Mhm>.

S <(uh)>^

F <Sometimes> it takes luck.

S God [ns].

S (uh uh uh uh) Patience [ns][e0][n].

F <Mhm>.

S <Patience> and (uh) [*ns][e0][n][cc]^

F Support.

S (uh) Virtue [ns][e0][n].

S (uh uh) <(uh uh)>^

F <It is>.

F <Yea>.

S <(uh uh)>^

F Mhm.

S (uh)^

+ tape ends

Subject 2

Narrative Sample 1

10/19/92

S I know perfectly clear [*s][ss][ds][e0][mcx-y][x][-y][mt2][cc][ad][a].

S (uh ok uh uh) Cinderella and my ma and (uh uh) two girl/s in a story [*ns][e0][n][cc][cc][n][cc][a][n][cc][cc][n].

S Cinderella and (anai uh uh) [*ns][e0][n][cc] >

S Cinderella and (and uh) my ma (uh) talk/ing [*s][ss][con][e0][*mop2x][x][mt2][n][cc][cc][n].

S (uh uh uh uh uh) Pick that up [s][ss][i][e0][mphob2xy][#x][y][mt2].

S (and uh uh and uh uh) Work in a house [*s][ss][ds][e0][mop2-x][-x][j][mt1][cc][cc][n].

S (and uh uh uh) Wash the dish/s (ok) [s][ss][i][e0][mop2xy][#x][y][mt2][cc][n].

S (uh, uh) Smile and (s uh) [*s][ss][ds][e0][mop2-x][-x][mt1][cc] >

S Ok [ns].

S (Uh) Cinderella (uh uh uh uh) smile/*3s (and all sorts of stuff) [*s][ss][ds][e0][*mop2x][x][mt1][n].

S (and uh) Doodle/ing [*s][ss][ds][e0][*mob1-x][-x][mt2].

S (and uh uh uh now uh) Two girl/s and (uh no ok ok u) [*ns][e0][a][n][cc] >

S Horse/s and (uh) dog and cat and (uh) [*ns][e0][n][cc][n][cc][n][cc] >

S Found (uh uh) horse/s and (uh) dog/s and (uh and uh misez mais) mice (and all sorts of) [*s][ss][con][e0][mob2-xy][-x][y][mt1][n][cc][n][cc][n] >

S Four of them (all sorts of stuff) [ns][e0][n][cc][cc].

S (Uh uh uh) A bird around the house [ns][e0][cc][n][cc][cc][n].

S (uh uh) Cinderella (ok uh uh) feed/*3s it and (uh uh) pig/s [*s][ss][con][e0][*mob2xy][x][y][mt1][n][cc][cc][n].

S (and uh uh uh) Cinderella (uh uh) smile/ed and everything

[s][ss][ds][e0][mop2x][x][mt2][n][cc][cc].

S (Uh ok uh) Cinderella and (uh) two (uh uh uh uh two uh uh uh uh) 00:06 (two uh uh) 00:18 (girls) girl/s [ns][e0][n][cc][a][n].

S (and uh uh) Cinderella throw/3s it in (and uh throws it in uh) [s][ss][ds][e0][mob2xy][x][y][mt2][n][cc][cc].

S Cinderella/*'s (uh) terrible [*ns][e0][n][a]!

S (Uh uh) Rip it up (and all sorts of stuff) [s][ss][i][e0][mphop2xy][#x][y][mt2][cc].

S (uh) I/'m surprise/*ed [*s][ss][pa][e0][*mc-xy][-x][y][mt2][cc].

S (Uh uh) Cinderella/*'s no good [*ns][e0][n][ad][a].

S (uh uh) Ok [ns].

S (uh uh) Banquet [*ns][e0][n].

S (uh uh) Cinderella (uh) ok I understand [*ns][e1][oc][cx-y][x][-y][t2][n][cc].

S (uh uh) Own earth (own earth uh uh uh uh uh uh own earth) [*s][ss][ds][e0][mob2-xy][-x][y][mt1][n].

S (uh) Cinderella (uh uh uh uh) two girl/s (uh) X (uh uh) hair (and all sorts of stuff) [*ns][e0][n][a][n][n].

=impossible

S (and uh) Gold and galore [*ns][e0][n][cc][a].

S (uh uh now) Cinderella and (uh uh uh uh uh uh cin uh) hand (uh uh) %poof [*ns][e0][n][cc][n]!

S (uh uh uh uh uh) Wand [*ns][e0][n].

S Wand [ns][e0][n]?

S (uh uh s uh) New person [ns][e0][a][n].

S (uh uh uh uh uh) 00:05 (now uh) Ball [*ns][e0][n]!

S (uh uh uh uh) Cinderella and wand (uh wand) [*ns][e0][n][cc][n].

S (and uh uh uh uh uh) Magnificent [ns][e0][a]!

S (uh uh) Gold (uh uh uh uh gold) and XX (uh and all sorts of stuff) [*ns][e0][n][cc].

=impossible

S (uh) Chariot/s [ns][e0][n].

S (uh uh uh) I can/n't believe it [s][ss][ds][e0][mcxy][x][y][mt3][cc][cc]!

S (uh) I (uh) [*ns][e0][cc]>

S One stroke of midnight (uh uh uh uh) %gong (uh uh ten eleven) twelve (twelve) [*ns][e0][a][n][cc][n][n].

S (uh uh) %gong %gong %gong [ns]!

S (uh) Midnight (uh) back again (ok) [*ns][e0][n][ad][ad].

S (uh uh) Repeat (uh) [*s][ss][ds][e0][mob2-x-y][-x][-y][mt1].

S Cinderella and (uh) wand [*ns][e0][n][cc][n].

S (uh) Ok I understand [es].

S (uh uh ok uh uh uh king uh queen and king and oh no uh uh) King of all the prize [*ns][e0][n][cc][cc][cc][n].

S (uh uh) Dance/ing galore [*s][ss][ds][e0][*mop2-x][-x][mt2][ad].

S (uh uh uh now) Cinderella %gong %gong %gong [*ns][e0][n]!

S (uh) Oh golly [ns]!

S (uh) See you late/er [es]!

S (uh) Wait [s][ss][i][e0][mob1x][#x][mt2]!

S Wait [s][ss][i][e0][mob1x][#x][mt2]!

S (uh) Come back [s][ss][i][e0][mphob1x][#x][mt2]!

S (uh uh) race/ing down and (uh) a peasant [*s][ss][ds][e0][*mob1-x][-x][mt2][ad][cc][cc][n].

S (uh uh now uh uh uh uh uh) Cinderella (uh) slipper/s (slippers) [*ns][e0][n][n].

S (uh uh) One slipper/s [*ns][e0][a][n].

S (uh) Oh God (uh) get away [*s][ss][ds][e0][mob1-x][-x][mt1][ad]!

S (uh uh) slipper [*ns][e0][n].

S (uh now uh uh uh kings uh uh uh uh uh) King throughout the world and find out who

the (s uh s) slipper/s (ok)

[*s][ss][ds][e1][mphcx*s'][x][*s'][mt2][oc][n][cc][cc][n][cc][cc][cc][n].

S (uh uh uh) Try it on and try it on and try it on [*s][ss][con][e0][mphop2-xy]

[-x][y][mt2][mphop2-xy][-x][y][mt2][mphop2-xy][-x][y][mt2][cc][cc][cc][cc][cc].

S Nobody know/3s (uh nobody knows) [*s][ss][ds][e0][mcx-y][x][-y][mt2][cc].

S (and) Cinderella (ok) [ns][e0][n].

S (now uh uh) Try it on and try it on [*s][ss][con][e0][mphop2-xy][-x][y][mt2]

[mphop2-xy][-x][y][mt2][cc][cc][cc].

S Oh come on [s][ss][i][e0][mphob1x][#x][mt2].

S (uh uh s uh uh) My ma/*'s (s s) Cinderella [*ns][e0][cc][n][n]!

S (uh uh) Ok [ns].

S (uh) Glass slipper/'s identical [*s][ss][ds][e0][mcopxp][x][p][mt2][a][n][a].

S (uh) A story go/3s (uh uh) wedding/s (and all sorts of stuff)

[*s][ss][ds][e0][mob1x][x][mt2][cc][n][n].

=story pronounced sorry

S (and) Happily [*ns][e0][ad].

+tape ends

Subject 2

Narrative Sample 2

11/3/92

S Cinderella/*'s (uh uh) 00:06 mop/ing the floor

[*s][ss][ds][e0][*mop2xy][x][y][mt2][n][cc][n].

S (and uh) 00:10 (uh mother is) 00:04 My mother is [*s][ss][ds][e0][mcopx-p][x]

[-p][mt2][cc][n]>

S (and) Two sister/s (uh uh uh all sorts all uh) busybody [*ns][e0][a][n][n].

S (uh uh uh) Neat and tidy [ns][e0][a][cc][a].

S (and uh) two women (uh) neat and tidy [*ns][e0][a][n][a][cc][a].

S Cinderella/*'s (uh) mop/ing up [*s][ss][ds][e0][*mphop2x][x][mt3][n].

S (and s) I understand [es].

S (uh) so what [es]?

S (uh) Mop it up (mop it up) [s][ss][i][e0][mphop2xy][#x][y][mt2][cc].

S (s uh 00:04 now uh) 00:05 (uh) 00:13 Cinderella and (uh uh uh) [*ns][e0][n][cc]>

: 00:16

S Cinderella and (uh uh) horse/s and (uh) dog/s (uh uh uh) three mice X (uh) bird/s (all sorts of stuff) [*ns][e0][n][cc][n][cc][n][a][n][n].

=impossible

S Sing/ing (uh) beautifully and Cinderella and I (uh) sing/ing (uh uh uh ok)

[*s][ss][con][e0][*mop2-x][-x][mt2][*mop2x][x][mt2][ad][cc][n][cc][cc].

S (uh uh) Cinderella and (uh) ball (ok ball uh uh) in the nighttime (uh)

[*ns][e0][n][cc][n][cc][cc][n].

S (now uh cook uh uh) Cook and (uh) scrub (and all sorts of stuff)

[*s][ss][con][e0][mop2-x][-x][mt1][mop2-x][-x][mt1][cc].

S At the ball (ok) [ns][e0][cc][cc][n].

S (uh uh) My ma and two sister/s (uh) 00.03 (uh) Cinderella (uh) give/*3s me that [*s][ss][ds][e0][*mop3xzy][x][z][y][mt1][cc][n][cc][a][n][n][cc][cc].

S (uh) Cinderella and (uh uh) sew [*s][ss][ds][e0][mop2-x][-x][mt1][n][cc].

S (and uh uh) Cinderella (uh uh) fix/*3s him (ok ok) [*s][ss][ds][e0][*mob2xy][x][y][mt1][n][cc].

S Alright [ns].

S (uh ok uh uh uh now) Beautiful gown/s (ok) [ns][e0][a][n].

S Cinderella (uh ok uh uh uh uh) 00:05 (uh) 00:04 gown (and all sorts of stuff) [*ns][e0][n][n].

S (uh uh) No way [ns].

S (uh uh) Cinderella in (uh) two (uh uh) 00:05 (two) XX woman [*ns][e0][n][cc][a][n].

=impossible

S (uh uh) In (uh) Cinderella (uh) rip/*3s it out [*s][ss][ds][e0][*mphob2xy][x][y][mt2][n][cc]!

S (uh uh) Clothes (and all sorts of stuff) [*ns][e0][n].

S (uh) No way [ns]!

S (uh uh uh uh) Cinderella (uh) dress and X on her dress [*ns][e0][n][n][cc][cc][cc][n].

=impossible

S (and uh uh uh uh) Ball [ns][e0][n]?

S No way [ns]!

S XX (uh uh uh) cry (ok cry) [*s][ss][ds][e0][mop2-x][-x][mt1].

=impossible

S (uh uh) Cinderella (uh uh) [ns][e0][n]>

S My ma and (uh) two (uh) girl/s (uh) ball [*ns][e0][cc][n][cc][a][n][n].

S (uh uh) Cry/ing and cry/ing [*s][ss][con][e0][*mop2-x][-x][mt2][*mop2-x][-x][mt2][cc].

S Nobody (uh) Cinderella (uh) [*ns][e0][cc][n].

S (now uh) %poof [ns].

S (uh uh uh) Surprise [ns][e0][n]!

S (uh) Wand and it startle/ed (uh s uh) [*s][ss][ds][e0][mob2x-y][x][-y][mt2][n][cc][cc]

S Magic wand [ns][e0][a][n]!

S Oh boy (uh oh boy) [ns]!

S (uh uh) Cinderella (uh uh uh) gold and (uh uh uh uh) chariot/s and (uh uh uh) horse/s (all sorts of stuff) [*ns][e0][n][n][cc][n][cc][n].

S Pumpkin/s (uh uh uh) whole bunch of stuff [*ns][e0][n][a][n][cc][n].

S (uh) Elaborate (uh ok) [ns][e0][a].

S Cinderella (uh uh) twelve %gong (uh uh) 00:06 [*ns][e0][n][n]>

S Cinderella (uh uh uh uh Cinderella uh) wand and (uh uh) [*ns][e0][n][n][cc]>

:00:20

S (uh) %gong %gong %gong [ns].

S (uh now uh) Pumpkin/*'s no more (no more) [*ns][e0][n][ad][a].

S (uh uh uh) Pauper/s (paupers ok) [ns][e0][n].

=paupers pronounced poorpers

S (ok) I understand [es].

S (uh uh) Elaborate [ns][e0][a].

S (uh uh uh) Prince/s and (uh uh uh) Cinderella dance and dance and dance [*s][ss][con][e0][mop2x][x][mt2][mop2x][x][mt2][mop2x][x][mt2][n][cc][n][cc][cc].

S (uh) %gong %gong [ns].

S Oh God [ns]!

S (uh uh) Slipper/s [*ns][e0][n]!

S (uh uh uh uh) %gong %gong [ns].

S (uh uh uh) Shoe/s (uh uh) slip off (uh) beautiful (uh uh uh) shoe/s [*s][ss][ds][e0][mphob2x-y][x][-y][mt2][n][a][n].

S (uh) one shoe (one shoe) [ns][e0][a][n].

S (uh uh) See you late/er [es].

S (uh) Cinderella run/3s and run/3s

[s][ss][con][e0][mop2x][x][mt2][mop2x][x][mt2][n][cc].

=runs pronounced rounds

S (uh) I don't care [es].

S Wait [s][ss][i][e0][mob1x][#x][mt2]!

S Come back [s][ss][i][e0][mphob1x][#x][mt2]!

S Come back [s][ss][i][e0][mphob1x][#x][mt2]!

S (uh runs uh) run away [*s][ss][ds][e0][mop2-x][-x][mt1][ad].

S (uh uh) Pumpkin (pumpkin uh ok) [*ns][e0][n].

:00:07

S Cinderella (uh) and (uh uh) [*ns][e0][n][cc]>

S In the morning (uh uh) Cinderella and two women and my ma (uh uh uh) little slipper/s [*ns][e0][cc][cc][n][n][cc][a][n][cc][cc][n][a][n].

S (uh uh) Golden arch/s (golden arches) and (uh) king/s all across the world that (uh) here try it on (try it on) [*s][ss][ds][e0][mphop2-xy][-x][y][mt2][a][n][cc][n][cc][cc][cc][n][cc][ad][cc].

S (uh) Nobody fit/3s (nobody fits) [*s][ss][ds][e0][mop2x-y][x][-y][mt2][cc]!

S (uh) Cinderella (uh uh uh) I/'ll try [*s][ss][ds][e0][mop2x][x][mt2][n][cc].

S No [ns].

S (uh uh uh) Slip it on [s][ss][i][e0][mphop2xy][#x][y][mt2][cc].

S (and) No [ns].

S (uh uh uh uh uh uh) XX next (next) [ns][e0][n].

=sounds like corinary

S (uh uh) XX.

=sounds like corinary

S (uh uh s uh) Wait (wait) [s][ss][i][e0][mob1x][#x][mt2]!

S (uh uh) Cinderella (ok) [ns][e0][n].

S (uh) Cinderella [ns][e0][n]?

S (uh) Laugh and laugh and precariously [*s][ss][con][e0][mop2-x][-x][mt1][mop2-x][-x][mt1][cc][cc][ad].

=precariously pronounced percariosly

S (uh) Cinderella and my ma (uh uh) try it on [s][ss][con][e0][mphop2xy][x][y][mt2][n][cc][cc][n][cc].

S Fit [*s][ss][ds][e0][mop2-x][-x][mt1]!

S (uh and) The (mory no) story (uh) prince/s Cinderella (uh) wedding and happily ever after [*ns][e0][cc][n][n][n][n][cc][ad][ad][ad].

=happily pronounced happyily

+tape ends

Subject 2

Narrative Sample 3

2/15/93

S Ok [ns].

S Cinderella/*'s (uh uh uh Cinderella uh) wash/ing

[*s][ss][ds][e0][*mop2x][x][mt2][n].

S (uh uh uh now uh uh uh) 00:05 (uh, uh, uh) 00:08 God damn it [ns].

: 00:08

S Cinderella (uh uh uh) living room (uh) wash/ing [*s][ss][ds][e0][*mop2-x]

[-x][mt2][n][a][n].

S (now uh uh) 00:09 My mom stepmother (stepmother) and (uh) two daughter/s (ok)

[*ns][e0][cc][n][n][cc][a][n].

S (and) Ball (ok) [*ns][e0][n].

S (uh ok uh uh) Sew (uh) it up (uh) and (uh) sew/ing [*s][ss][con][mphop2-xy]

[-x][y][mt2][*mop2-x][-x][mt2][cc][cc].

S (uh uh) Cut the ribbon (all sorts of stuff) [s][ss][i][e0][mob2xy][#x][y][mt2][cc][n].

S Through (ok) [*ns][e0][cc].

S (uh uh now) Cinderella (uh uh) [ns][e0][n]>

S Late/er on (uh) Cinderella and (uh uh uh uh uh) bird (and uh uh uh uh uh uh uh bird and all sorts of stuff) [*ns][e0][ad][cc][n][cc][n].

S (uh uh uh) Cinderella beautiful wedding gown [*ns][e0][n][a][a][n].

S Wedding ball (ok) [*ns][e0][a][n].

S Oh golly [ns].

S Ok [ns].

S (uh) In the nightime (uh) two daughter/s no way [*ns][e0][cc][cc][n][a][n][ad][n]!

S (uh uh) Grab up and (and) rip it off [*s][ss][con][e0][mphob2-x-y][x][-y][mt2]

[mphob2-x-y][-x][-y][mt2][cc][cc].

S (and uh) No way at all [ns][e0][ad][n][cc][cc].

S (uh uh) X.

=sounds like dreads or threads

S (uh) Cinderella cry/ed [s][ss][ds][e0][mop2x][x][mt2][n].

S (uh uh uh uh) Cinderella (uh) stay home [s][ss][i][e0][mob1x][x][mt2][n][ad]!

S (uh) It/s cry/ed and (uh) cry/ed [*s][ss][con][e0][mop2x][x][mt2][mop2x][x][mt2][cc][cc].

S (and uh) Ball/*'s (uh) gone (af) after (ok) [*s][ss][ds][e0][*mob1x][x][mt2][n][cc].

S Cinderella (ok uh uh) cry/ed [s][ss][ds][e0][mop2x][x][mt2][n].

S (uh oh now uh uh now uh uh uh uh uh uh uh) 00:05 %poof (poof) [ns]!

S (uh) Mystical (uh mystical) [ns][e0][a].

S (uh uh) Flow/ing down [*s][ss][ds][e0][*mob1-x][-x][mt2][ad].

S (uh uh) Godmother (godmother godmother uh) tell me the way wrong [*s][ss][i][e0][mop3xz*y][x][z][*y][mt2][n][cc][cc][n][a].

S Ok [ns].

S (uh ok uh) X (and all sorts of stuff).

=sounds like dar

S (and uh) Elaborate (ok) [ns][e0][a].

S (uh ok) Coach/s and (uh) everything else [*ns][e0][n][cc][cc][ad].

S I warn/ed you [s][ss][ds][e0][mcxy][x][y][mt2][cc][cc].

S (uh uh uh) 00:04 (sixteen five ten eleven) twelve (twelve uh) in the nightime it/'s through [*s][ss][ds][e0][mcopxp][x][p][*j][mt2][n][cc][cc][n][cc][ad].

S (uh uh uh) Pumpkin (uh uh uh uh uh) horse and (uh uh uh) mice [ns][e0][n][n][cc][n].

S (uh uh) 00:05 (ok uh uh co uh uh uh) 00:06 (uh) Cinderella (uh uh) in the nightime (uh uh) no long/er (ok) [*ns][e0][n][cc][cc][n][ad][a].

S (uh) That/'s it (ok) [s][ss][ds][e0][mcopxp][x][p][mt2][cc][cc]!

S I understand [es].

S (uh) Dance and dance (and all sorts of stuff) [*s][ss][con][e0][mop2-x][-x][mt1] [mop2-x][-x][mt1][cc].

S (uh uh) Prince (uh) and (uh uh uh) Cinderella and (uh) princess dance and dance and dance (ok) [*s][ss][con][mop2x][x][mt2][mop2x][x][mt2][mop2x][x][mt2][n][cc][n][cc][n][cc][cc].

S (uh and) %gong (uh uh sixteen uh five ten eleven) Twelve in the nightime [*ns][e0][n][cc][cc][n].

S (uh) %gong %gong [ns].

S Oh my gosh [ns]!

S It is right [s][ss][ds][e0][mcopxp][x][p][mt2][cc][a].

S (uh) Pumpkin and (e) every kind of (uh) horse [*ns][e0][n][cc][cc][n][cc][n].

S (and uh uh) My god [ns]!

S (uh) See you late/er [es].

S No run/ing [*s][ss][ds][e0][*mop2-x][-x][mt2].

S Wait [s][ss][i][e0][mob1x][#x][mt2]!

S Cinderella prince is (uh uh uh) [*s][ss][ds][e0][mcopx-p][x][-p][mt2][n][n]>

S Wait [s][ss][i][e0][mob1x][#x][mt2]!

S (uh) Come back [s][ss][i][e0][mphob1x][#x][mt2]!

S (uh uh) Run (uh run) down the hill (ok) [*s][ss][ds][e0][mop2-x][-x][j][mt1][cc][cc] [n].

S (uh uh) Slipper [*ns][e0][n].

S (uh) Run/ing down the hill [*s][ss][ds][e0][*mop2-x][-x][j][mt2][cc][cc][n].

S (uh uh uh uh uh uh uh) Shoe/*'s off [*ns][e0][n][ad].

S I don't care [es].

S Run/ing (run/ing) [*s][ss][ds][e0][*mop2-x][-x][mt2].

S (uh) Princess and found them [*s][ss][ds][e0][mc-xy][-x][y][mt2][n][cc][cc].

S (uh) I found them [s][ss][ds][e0][mcxy][x][y][mt2][cc][cc].

S (uh) Cinderella (uh) and (uh) shoe/s [*ns][e0][n][cc][n].

S One shoe is (is i uh uh) white (white uh go uh uh) plastic [s][ss][ds][e0][mcopxp][x][p][mt2][a][n][a][n].

S (uh princess uh uh uh uh uh uh uh princess uh uh no) 00:06 Prince (prince uh uh uh) one shoe [*ns][e0][n][a][n].

S (uh) I/'ll X in the morning (uh) find the shoe (ok) [*s][ss][ds][e0][mc-xy][-x][y][j][mt1][cc][cc][cc][n][cc][n].

=sounds like cape

S (ok) Different type (different type) and everybody (uh uh uh) little and big (and all sorts of stuff) [*ns][e0][a][n][cc][cc][a][cc][a].

S (uh now uh) Cinderella and (uh) open it up [*s][ss][ds][e0][mphop2-xy][-x][y][mt2][n][cc][cc].

S (uh uh uh uh uh uh uh m m) 00:04 (uh uh) Cinderella (o uh) open up [s][ss][i][e0][mphop2x][x][mt2][n].

S (uh) Try it on (ok) [s][ss][i][e0][mphop2xt][#x][y][mt2][cc].

S (uh ok i) Exactly (exactly) [ns][e0][ad].

S (princess uh uh) Golden princess [*ns][e0][a][n].

S (uh) Finally (uh) had them 00:05 a wedding [*s][ss][ds][e0][mob2-xy][-x][y][mt2][ad][cc][cc][n].

S (and) Princess and (uh princess and uh) queen (uh) happily ever after [*ns][e0][n][cc][n][ad][ad][ad].

+ tape ends

Subject 2

Narrative Sample 4

2/16/93

S (ok) Cinderella/*'s (uh) wash/ing (uh uh uh uh) living room [*s][ss][ds][e0][*mop2xy][x][y][mt2][n][a][n].

S (uh and uh uh) 00:06 (uh) 00:04 Stepmother and two daughter/s (uh) ball (ok) [*ns][e0][n][cc][a][n][n].

S (ok now uh uh s ok uh uh uh and uh uh uh uh uh uh uh uh) Dish/s and all (all) the stuff Cinderella [*ns][e0][n][cc][cc][cc][n][n].

S (and uh uh uh uh) Farm (uh uh uh) here (uh uh uh) dog and (uh uh k uh uh) meow (uh) bird (and uh uh uh all kinds of stuff) [*ns][e0][ad][n][cc][n][n].

S (ok) Done and Cinderella and (uh) ball (ok) [*s][ss][ds][e0][mob2-x-y][-x][-y][mt2] [cc][n][cc][n].

S (and uh) 00:05 (uh) Stepsister and (daughter) two daughter/s (uh) ball (ok) [*ns][e0][n][cc][a][n][n].

S (and uh uh) Sew the dress (uh) elaborate [*s][ss][ds][e0][mop2-xy][-x][y][mt1][cc][n] [a].

S (and uh) Dance beautiful [*s][ss][ds][e0][mop2-x][-x][mt1][a].

S Fine [ns].

S (uh now uh) Cinderella (uh) all (uh) ball [*ns][e0][n][cc][n].

S (uh) Oh [ns]!

S (uh uh) Elaborate [ns][e0][a].

S It/'s (i i) fancy [s][ss][ds][e0][mcopxp][x][p][mt2][cc][a].

S (uh uh uh uh now uh uh) Cinderella and (uh) two (uh uh) daughter/s take it [s][ss][con][e0][mop3xy][x][y][mt2][n][cc][a][n][cc].

S (uh) no no [ns]!

S (uh uh) Rip it up [s][ss][i][e0][mphop2xy][#x][y][mt2][cc]!

S (uh uh) Hey cut it out [s][ss][i][e0][mphob2xy][#x][y][mt2][cc]!

S (uh uh) Rip it up [s][ss][i][e0][mphop2xy][#x][y][mt2][cc].

S (and uh uh uh) Dance [*s][ss][yn][e0][mop2-x][-x][mt1]?

S No way [ns]!

S (uh) X a pant/s [*ns][e0][cc][n].

=sounds like golden pants

S (and uh uh uh uh) Sad [ns][e0][a].

S So sad (uh ok) [ns][e0][ad][a].

S (uh now uh uh) Stepsister and two daughter/s bye see you late/er [*ns][e1][oc][cxy][#x][y][t2][n][cc][a][n][cc][ad].

S (and) Cry/ing (uh crying) [*s][ss][ds][e0][*mop2-x][-x][mt2].

S (uh) Oh it/'s (it's uh) [*s][ss][ds][e0][mcopx-p][x][-p][mt2][cc]>

S How come [es]?

S (uh uh) Cinderella/*'s (uh) look/ing (look/ing) [*s][ss][ds][e0][*mob1x][x][mt2][n].

S (uh) Fairy godmother appear/ed (ok) [*s][ss][ds][e0][mcx][x][mt2][a][n].

S Oh boy [ns]!

S (uh uh uh now uh) Cinderella and (uh) elaborate (all sorts of stuff) [*ns][e0][n][cc][a].

S Remember (uh uh) tell you what you do [*s][cs][i][e2][mc-x*s'][-x][*s'][mt1][oc][op3-xzy][-x][z][y][t1][oc][ob2xy][x][y][t2][cc][cc][cc].

S (uh uh twelve in the nightime uh uh in the nightime uh) Twelve pm no long/er is (ok) [*s][ss][ds][e0][mcopx-p][x][-p][mt1][a][n][ad][a].

S (uh uh uh) Coach and (uh uh uh uh) all that kind of stuff [*ns][e0][n][cc][cc][cc][n][cc][n].

S (uh uh) Ok [ns].

S I understand [es].

S (uh uh) Remember (ok) [*s][ss][ds][e0][mc-x-y][-x][-y][mt1].

S A ball [ns][e0][a][n].

S (I hey uh uh) Princess (uh) elaborate and dance (and all sorts of stuff) [*s][ss][ds][e0][mop-x][-x][mt1][n][a][cc].

S (uh uh) %gong [ns].

S Oh golly [ns]!

S (uh) Forgot about it [*s][ss][ds][e0][mc-xp][-x][p][mt2][cc][cc].

S (uh uh) See you late/er [es].

S Bye [ns].

S (uh) Dash/ing (uh) down the hill [*s][ss][ds][e0][*mop2-x][-x][j][mt2][cc][cc][n].

S (uh) Wait [s][ss][i][e0][mob1x][#x][mt2]!

S Wait and come back [*s][ss][con][i][e0][mob1x][#x][mt2][mphob1x][#x][mt2][cc]!

S (uh ok uh slipper uh uh) Shoe/s [*ns][e0][n].

S One shoe [ns][e0][a][n].

S (uh uh) Run/ing (runing) [*s][ss][ds][e0][*mop2-x][-x][mt2].

S (uh) Gone [*s][ss][ds][e0][mob1-x][-x][mt2].

S Oh [ns]!

S (uh princess uh uh uh prince) Prince (uh) one shoe [*ns][e0][n][a][n].

S Oh god [ns]!

S Find out (uh uh find out uh uh uh uh shoe) one shoe [*s][ss][ds][e0][mphc-x*s'][-x][*s'][mt2][oc][a][n].

S Look at all of them (ok) [s][ss][i][e0][mob1x][#x][j][j][mt2][cc][cc][cc][cc].

S (ok uh uh uh) Short and long and middle (and all sorts of stuff) [*ns][e0][a][cc][a][cc][n].

S (uh I) I can/n't believe it [s][ss][ds][e0][mcxy][x][y][mt3][cc][cc].

S No (uh uh uh) shoe (no shoe) [ns][e0][a][n].

S (uh ok) It (uh uh uh uh) [*ns][e0][cc]>

S Stepsister open/*3s a door [*s][ss][ds][e0][*mob2xy][x][y][mt1][n][cc][n].

S (uh) Cinderella come here [s][ss][i][e0][mphob1x][x][mt2][n].

S (uh uh) Perfect [ns][e0][a].

S Perfect is happily after [*s][ss][ds][mcop*x-p][*x][-p][mt1][a][ad][ad].

+ tape ends

Subject 2

Narrative Sample 5

3/9/93

S Cinderella/*'s (uh uh Cinderella uh) 00:04 (uh) mop/ing (moping) [*s][ss][ds][e0][*mop2x][x][mt2][n].

S (and uh) Stepmother/*'s 00:03 (hard uh hard) very hard [*ns][e0][n][ad][a].

S (uh and uh) Step two daughter/s (uh uh) is (uh) terrible [*s][ss][ds][e0][*mcop*xp][*x][p][mt1][a][a][n][a].

S (s ok uh) 00:03 (uh) Ball (uh uh uh ball) [*ns][e0][n].

S (uh now) 00:03 (m m m) Mop/ing (uh uh) wash/ing (uh) dry/ing (uh uh uh) 00:03 (uh uh uh uh) play (uh) front yard and (uh uh uh) barn (uh all that kind of stuff) [*s][ss][con][e0][*mop2-x][-x][mt2][*mop2-x][-x][mt2][*mop2-x][-x][mt2][*mop2-x][-x][*j][mt1][a][n][cc][n].

S (ok uh uh) Four thirty (uh uh) sew/ing (uh cinder uh uh) cinderella and (uh) two stepsister/s [*s][ss][ds][e0][*mop2-x][-x][*j][mt2][n][n][n][cc][a][n].

S (and uh) Hurry up (hurry up) [s][ss][i][e0][mphop2x][#x][mt2]!

S (ok uh uh uh) Hold on (uh uh uh hold on) [s][ss][i][e0][mphop2x][#x][mt2].

S Beautiful [ns][e0][a].

S Gorgeous [ns][e0][a].

S (uh uh) Stepdaughter (uh s uh uh) and (uh uh) 00:03 (uh) Cinderella and (uh uh) beautiful dress [*ns][e0][n][cc][n][cc][a][n].

S Oh (uh uh) beautiful [ns][e0][a].

S (uh purp uh uh uh pur uh yea uh uh) Purple [ns][e0][a].

S That/'s (uh ok) [*s][ss][ds][e0][mcopx-p][x][-p][mt2][cc]>

S (uh uh, now uh) 00:03 (cinderel uh) Cinderella and (uh) stepsister (uh) no no [*ns][e0][n][cc][n].

= stepsister pronounced setsister

S (uh) Definitely not [ns][e0][ad][ad].

S Rip it off [s][ss][i][e0][mphop2xy][#x][y][mt2][cc].

= rip pronounced wip

S (uh) Clothes and (uh) shred/s [*ns][e0][n][cc][n].

S (uh uh uh) Cry and then cry [*s][ss][con][e0][mop2-x][-x][mt1][mop2-x][-x][mt1][cc][cc].

S Cinderella is (uh uh) ball [*s][ss][ds][e0][mcopx*p][x][*p][mt2][n][n].

= Cinderella pronounced siserela

S (uh) Step (uh uh) cinderella good [*ns][e0][n][n][a].

S I/'m glad [s][ss][ds][e0][mcopxp][x][p][mt2][cc][a].

S (uh uh uh) Stepsister ball [*ns][e0][n][n].

S See you later [es].

S (ok and uh now uh) Cry/ing [*s][ss][ds][e0][*mop2-x][-x][mt2].

S (uh ok uh uh wand uh) Beautiful wand [ns][e0][a][n].

S (uh uh XX uh s) %poof [ns]!

=sounds like is it

S X (uh) magic and appear [*s][ss][ds][e0][mc-x][-x][mt1][n][cc].

=impossible

S (uh uh ok and uh uh) 00:05 (uh uh) 00:05 (s) Cinderella and (uh uh Cinderella and uh uh uh Cinderella and uh) whole (uh) [*ns][e0][n][cc][a] >

: 00:12

S (ok, uh) Next question [ns][e0][a][n].

= laugh

S (uh uh uh, now, uh uh) (w) Wand (m wand) [*ns][e0][n].

S (uh) Float/ing (uh) magic it appear/*3s [*s][ss][con][e0][mob1-x][-x][mt2][*mcx][x][mt1][a][n][cc].

S %poof [ns]!

S Cinderella and (uh) magical power/s [*ns][e0][n][cc][a][n].

S Oh [ns]!

S (uh uh uh) Cinderella, don't cry (s s don't cry) [s][ss][i][e0][mop2x][x][mt4][n].

S (uh) Cinderella wipe the (the) tear/s (ok) [s][ss][i][e0][mob2xy][x][y][mt2][n][cc][n].

S (uh uh) Pumpkin and whole bunch of (s) stuff [*ns][e0][n][cc][a][n][cc][n].

S (uh) A ball [ns][e0][cc][n].

S How come (how come) [es]?

S (uh) I/*'ll show you [*s][ss][ds][e0][*mcxy][x][y][mt1][cc][cc].

S (uh) Ball and magical (uh) horse (and all ki kinds of stuff) [*ns][eo][n][cc][a][n].

S By the way (uh uh uh oh) 00:03 five ten eleven twelve (uh) no deceased [*ns][e0][cc][cc][n][n][n][n][n][ad][a].

S How come [es]?

S (I I I) This is how (it) it appear/*3s [*s][cs][ds][e1][mcopx*s'][x][*s'][mt2][oc][*cx][x][t1][cc][cc][cc].

S Oh [ns]?

S Ok [ns].

S (uh uh) Cinderella dance/*ed and dance/*ed [*s][ss][con][e0][*mob1x][x][mt1][*mob1x][#x][mt1][n][cc].

S (and) Nobody (uh) ball [*ns][e0][n][n].

S (uh) Cinderella and (uh uh) prince/s (all that kind of stuff) [*ns][e0][n][cc][n].

S (uh uh now) 00:03 (uh) Break of dawn it is [*s][ss][ds][e0][mcopx*p][x][*p][mt2][n][cc][n][cc] >

S (uh uh) In the night time (uh uh uh yea, uh, uh, uh) ten eleven twelve oclock [ns][e0][cc][cc][a][n][n][n][n][n].

S %gong %gong [ns].

S Oh my gosh [ns]!

S I (I I), [*ns][e0][cc] >

S See you later [es].

S Wait [s][ss][i][e0][mob1x][#x][mt2]!

S Come back [s][ss][i][e0][mphob1x][#x][mt3]!

S (I I I d) Princess (I I I uh, uh uh) [*ns][e0][n]>

S See you later [es].

S Ran/ed off [*s][ss][ds][e0][*mphop1-x][-x][mt2].

S Mhm [ns].

S By the way (uh d s) XX slipper/s [*ns][e0][cc][cc][n][n].

=sounds like who the

S (uh) One, in a slipper/s [*ns][e0][n][cc][cc][n].

= slippers pronounced sippers

S Huh [ns].

S (uh uh) White [ns][e0][a].

S (uh uh) I/'ll (d) show it (uh) all around the world

[s][ss][ds][e0][mcxy][x][y][j][mt3][cc][cc][cc][a][cc][n].

S (uh uh, now uh, uh uh uh uh uh) Golden arch/s [ns][e0][a][n].

S (uh, uh uh) Prince/s in the morning (uh) bright and early (ok)

[*ns][e0][n][cc][cc][n][a][cc][ad].

S (uh now uh uh uh) Stepsister (uh uh ok) slip them on

[s][ss][i][e0][mphop2xy][x][y][mt3][n][cc].

S (uh uh), Fat and tall [ns][e0][a][cc][a].

S (and) Next [ns][e0][n].

S Next (ok) [ns][e0][n].

S (and uh) Hold on [s][ss][i][e0][mphop2x][#x][mt2].

S (uh) Key open/*3s up [*s][ss][ds][e0][*mphob2x-y][x][-y][mt2][n].

S Cinderella [ns][e0][n].

S (uh uh) Perfect [ns][e0][a].

S (uh now uh uh) King (uh uh) wedding (uh all that stuff) [*ns][e0][n][n].

S Happily after [*ns][e0][ad][ad].

+ tape ends

Subject 2

Narrative Sample 6

3/12/93

S Cinderella/*'s 00:03 (uh uh uh Cinderella) and (uh) work/ing [*s][ss][ds][e0][*mop2x][x][mt2][n][cc].

S (uh uh, uh, uh uh, uh) 00:04 Cinderella and (uh) stepsister and two daughter/s [*ns][e0][n][cc][n][cc][a][n].

=stepsister pronounced stepsipster

S (and uh now, and uh uh) A ball (ok) [ns][e0][cc][n].

S (uh, uh) 00:04 (uh, now uh stepsister duh daughter daughter) Stepdaughter and (uh, uh, ok) [*ns][e0][n][cc]>

S (uh, uh) Cinderella and (uh), stepdaughter (uh) sew/ing (uh uh uh) ball [*s][ss][ds][e0][*mop2x*y][x][*y][mt2][n][cc][n][n].

S (uh uh now uh uh) 00:06 Mother (mother) [ns][e0][n].

: 00:05

S Can/n't say it [*s][ss][ds][e0][mc-xy][-x][y][mt3][cc].

: 00:10

S Step, Cinderella/*'s and work/ing (uh) diligently (ok) [*s][ss][ds][e0][*mop2x][x][mt2][n][n][cc][ad].

= diligently pronounced digitally

S (now uh step) 00:06 (stepdaughter uh, step s uh) 00:04 (step, uh, man) Stepman (uh uh) and two (uh) daughter/s (uh uh) 00:04 (uh) 00:03 [*ns][e0][n][cc][a][n]>

S (uh now uh uh, uh, uh, uh uh) Wash/ing and clean/ing and (uh uh) sew/ing (all that kind of stuff) [*s][ss][con][e0][*mop2-x][-x][mt2][*mop2-x][-x][mt2][*mop2-x][-x][mt2][cc][cc].

S All done [ns][e0][cc][a].

S (uh, now), Cinderella and I (uh uh) 00:04 own (own) four oclock (uh) a ball (ok)

[*ns][e0][n][cc][cc][cc][a][n][cc][n].

S (uh, ok uh) Done, cinderella beautiful gown [*ns][e0][a][n][a][n].

S (and, and) Step, two daughter/s no way (no way) [*ns][e0][n][a][n][ad][n]!

S (uh) Rip it up (and all sorts of stuff) [s][ss][i][e0][mphop2xy][#x][y][mt2][cc].

= rip pronounced wip

S Rip it off and golden and everything about it [*s][ss][ds][e0][mphop2-xy]
[-x][y][mt2][cc][cc][a][cc][cc][cc][cc].

S No no [ns].

S (uh) Cinderella (uh uh), home [*ns][e0][n][n].

S Cinderella (uh uh uh uh) the ball [*ns][e0][n][cc][n].

S Stay home [s][ss][i][e0][mop2x][#x][mt1][ad].

S (uh) Cry/ed and cry/ed and cry/ed [*s][ss][con][e0][mop2-x][-x][mt2][mop2-x]
[-x][mt2][mop2-x][-x][mt2][cc][cc].

S (uh uh, now uh) Stepsister and two daughter/s ball [*ns][e0][n][cc][a][n][n].

S (and) X cry/ed and cry/ed and cry/ed [*s][ss][con][e0][mop2-x][-x][mt2][mop2-x]
[-x][mt2][mop2-x][-x][mt2][cc][cc].

= sounds like her

S (uh) Cinderella what/'s X to do [*s][cs][wh][e1][mcopx-p][x][-p][mt2][oc][ob2xy]
[#x][y][t2][n][what]?

=sounds like duh

S (uh uh uh uh, god god uh, uh mother) Godmother (re) reappear/ed
[s][ss][ds][e0][mob1x][x][mt2][n].

S (s cinderel g) Golden arch/s (uh) magnificent [*ns][e0][a][n][a]!

S (uh) I (a I I) can/n't believe it [s][ss][ds][e0][mcxy][x][y][mt3][cc][cc].

S (uh uh now uh, by the way uh) Golden arch/s (uh) elaborate (and all sorts of
stuff) [*ns][e0][a][n][a].

S (uh uh, uh) XX (all sorts of stuff).

=impossible

S (uh) By the way (uh), the (the) gong (uh uh) in the night time (uh uh) 00:03 twelve oclock through [*ns][e0][cc][cc][n][cc][n][cc][cc][a][n][a][n][ad].

S Ok [ns].

S (uh uh b) Ball and dance/ing a ball [*s][e0][*op2-x*y][-x][*y][mt2][n][cc][cc][n].

S (and uh uh) Cinderella and prince/s (and all sorts of stuff) [*ns][e0][n][cc][n].

S (uh uh uh) Gong (uh uh) ten eleven twelve [*ns][e0][n][n][n][n].

S (uh) %gong %gong [ns].

S Oh my gosh [ns]!

S I/*ll (uh), see you late/er [*s][ss][ds][e0][*mcxy][x][y][mt1][cc][cc][ad].

S (uh) Dash/ed off [*s][ss][ds][e0][mphob1-x][-x][mt3].

S (uh b) Wait [s][ss][i][e0][mob1x][#x][mt1]!

S (uh) Come back [s][ss][i][e0][mphob1x][#x][mt2]!

S (uh uh, uh, uh uh) Run/ing down the street [*s][ss][ds][e0][*mob1-x][-x][j][mt2][cc][cc][n].

S (uh uh) Golden archway/s[ns][e0][a][n].

S (uh uh uh) Silver (uh slipper uh) one slipper [*ns][e0][a][a][n].

S (ok uh uh) 00:04 Tomorrow I/'ll find out (uh) princess (ok) [*s][ss][ds][e0][mphcx*s'][x][*s'][mt3][ad][cc][n].

S (uh) In the morning (uh uh now uh) 00:06 (uh in the morning, uh uh), two stepsister/s no [*ns][e0][cc][cc][n][a][n][ad].

S (uh) Definitely not [ns][e0][ad][ad].

S Fifty (uh uh uh uh uh si uh uh uh) too short and too tall [*ns][e0][n][ad][a][cc][ad][a].

S (uh uh) Hold on [s][ss][i][e0][mphop2x][#x][mt2].

S Cinderella/*'s (uh uh, uh Cinderella) perfect (ok) [*ns][e0][n][a].

S (uh, uh) 00:04 Wedding (uh uh) Cinderella (uh uh) happily ever after

[*ns][e0][n][n][ad][ad][ad].

+ tape ends

Subject 3

Conversation Sample 1

S=Subject, F=Family Member

2/8/93

F Mhm.

S Ok [ns].

F Yea.

S Earring/s why (wh) [*ns][e0][n][cc]^

F Talk about wearing earrings ok.

S I knew it [s][ss][ds][e0][mcxy][x][y][mt2][cc][cc].

S (b) You know why [s][ss][eq][e0][mcxy][x][y][mt2][cc][cc]?

F Why?

S (remember I mean uh hab uh) Sick [*ns][e0][a].

F At when you were <at rehab>?

S <Yea> [ns].

S I don't remember (I don't remember) [es].

S (now) How long [es]?

S One two year/s [ns][e0][a][a][n].

F Four months.

S Yea no (I mean) <to X> [ns][e0][cc].

=impossible

F <Oh you mean> two years from then?

S Yea (uh uh) <(yea uh)> [ns]^

F <Yea but> that that's different because you were sick.

F You were really sick and you don't remember stuff when you're sick.

S No (but) I (uh I Imean I I) don't think can (you know sa) same story [*s][cs][ds][e1][mcx*s'][x][*s'][mt3][oc][cc][a][n].

S <(now)>ˆ

F <You can't> changeˆ

S (but uh) Yes (yea uh) but not much (you know) [ns][e0][cc][ad][a].

S (because) Same story (uh) heart (you know uh uh) fish [*ns][e0][a][n][n][n].

S When [es]?

S Remember [es]?

S Should (uh) eat fish [*s][ss][ds][e0][mop2-xy][-x][y][mt3][n].

S (now now) I don't think not usual no[*s][cs][ds][e1][mcx*s'][x][*s'][mt3][cc][ad][a].

F But you hardly ever eat meat though.

F Mostly chicken <mostly>.

S <uh> Lunch (like say) [ns][e0][n].

F Yea and dinner you don't have meat.

S No (but) [ns]ˆ

F Well anyway I know what you the point is that especially when people are grown.

F I mean you can take kids and put them through something and have it stick a little more but when people are adults <I think> you're right.

S <Yea> [ns].

F I don't thinkˆ

S (but now) <How much> [ns][e0][cc][a]ˆ

F <They change much>.

S I (I) see number/s <I> am (uh) confuse/ed [*s][ss][con][e0][mob2xy][x][y][mt2][mob2xy][#x][y][mt3][cc][n][cc].

F <Yes>.

S (uh but seems like uh) Money/*'s low [*ns][e0][n][a].

F Well what they're what they're modifying the program because they're finding that somebody is in prison with uh in for three years.

F You know just a straight prison throw them <in prison> let them sit there.

S <Mhm> [ns].

F As <a>^

S <Three> year one <X> [*ns][e0][a][n][n].

=impossible

F <Yea>.

F Has the same effect in terms of those who come back as somebody whose in that boot camp for six months you know half a year.

S I don't get it [s][ss][ds][e0][mob2xy][x][y][mt3][cc][cc].

F Ok.

F They're in the boot camp for just half a year.

F The boot camp <prison>.

S <Yea> [ns].

F They have the same rate of return coming back as somebody whose there for three years.

F So if they can keep them there for half a year save money they don't have to feed them^

S Oh [ns]!

F all that stuff for <as long>.

S I see [es].

F But other than that>

F I mean that saves money but theyre still not having any real effect.

F It's not changing people's lives.

F They're still having the same^

S Yea [ns].

S (but) Good idea (uh uh) jail (you know) [*ns][e0][a][n][n].

S Bad (uh) not [*ns][e0][a][cc]>

S (remember uh) Talk/ing (uh you know) bad (uh, bad uh) cell (you know) [*s][ss][ds][e0][*mop2-x][-x][mt2][a][n].

F Keeping <them> separate?

S <(tu)>^

S <Yea> [ns].

F <The ones> that aren't so <like> they're first time offenders^

S <Yea> [ns].

F <so> they don't get hardened.

S <Yea> [ns].

S (that/'s right) That/'s right [s][ss][ds][e0][mcopxp][x][p][mt2][cc][a].

S I think I <(I)> good [*s][cs][ds][e1][mcx*s'][x][*s'][mt1][oc][cc][cc][a].

F <That's good>.

S <Yea> [ns].

F <Yea>.

F It's like with kids treating them differently juveniles you know not just throwing them in with <the> old uh>

S <Yea> [ns].

F But uh you know it is sort of surpri>

F But it and the big problem like what they said is not what happens there but the fact that going back to the same thing <the> same environment.

S <Mhm> [ns].

F I was thinking if they're going to do boot campI wonder^

S <XXX>.

=impossible

F <It it's probably> would be a violation of civil rights or something.

F But it seems like it if they're going to do like kind of like basic training^

S Real [ns][e0][a]?

F Why not why not make them go into the army after that?

F That changes their environment.

F Then they're not going back to the streets.

S Mhm [ns].

F They're not going back to the drug stuff.

F <Just>^

S <(whachamacallit)> (uh uh) War movie (uh) one two three four five six seven eight nine ten eleven twelve men [*ns][e0][a][n][a][a][a][a][a][a][a][a][a][a][a][a][n].

F Twelve angry men?

S Yea [ns].

F Yea?

S Same story [ns][e0][a][n].

F No.

F I don't remember.

F I thought it was that was all about what some you know a verdict jury <like in XX>^

=impossible

S <Oh no I/'m sorry> [s][ss][ds][e0][mcopxp][x][p][mt2][cc][a].

F <That was a different one>.

S <No no no> [ns].

S Yea (yea) [ns].

F Oh I don't know.

S (uh) Oh never mind [es].

F But what do you th>

F I mean what <what about> just making>

S <I (re)> [*ns][e0][cc]^

F Probably the army wouldn't want to have criminals.

F But if you took them and just just spread them out so you'd have like you know one guy in this unit and another guy and have it be part of their prison sentence.

F They do this boot camp prison and then they have to go to the army for two years.

S Yea [ns].

F And then maybe they'd get a job and then they wouldn't go right back into their^

S Job [*ns][e0][n].

S That/'s right [s][ss][ds][e0][mcopxp][x][p][mt2][cc][a].

S Good idea [ns][e0][a][n].

F Well then you can write in.

S I can/n't because phone scare/3s (and so) [*s][e1][ac][ob2x-y][x][-y][t2][cc][cc][n].

=F laughs

S Sorry [ns][e0][a].

F Well what else <do you think>?

S <(but) Good> [ns][e0][a].

S (uh), (I well) I don't know (well) [es].

F We can talk about other things she said.

S Yea (well) earring/s [ns][e0][n].

F <My missing earrings>.

S <Notice (uh)> earring/s [*s][ss][ds][e0][mc-xy][-x][y][mt1][n]?

= F laughs

F Are missing.

S Yea [ns].

S Sorry [ns][e0][a].

S That/'s ok [s][ss][ds][e0][mcopxp][x][p][mt2][cc][a].

S (but) I don't think can tell [*s][cs][ds][e1][mcx*s'][x][*s'][mt3][oc][ob2-x-y][-x][-y][t2][cc].

F You can talk about your puzzle and your lack of progress.

= both laugh

F You got to talk now not laugh.

S Oh ok [ns].

S (uh now I w uh I remember uh uh) Movie (uh) angry [*ns][e0][n][a]^

F Oh you're trying to think of <this movie>^

S <Yea> [ns].

F <Still>?

S <Yea> [ns].

S (uh uh) Walk two <one two> [*s][ss][ds][e0][mob1-x][-x][mt1][n][n][n].

F <See but> I'm not g I don't know because I'm not going to remember the same movie and you're just going to keep trying to remember it and I'm not going to know what it is.

S Yea ok [ns].

S Too bad [ns][e0][ad][a].

F Is it about a prisoner?

S (uh) No (uh uh, ok I) movie combat (combat) [ns][e0][a][n].

F Yea.

S (and) Hundred/s (uh) I thought one two three four five six seven eight nine ten eleven twelve (uh uh)
[*s][ss][ds][e0][mc*x*s'][*x][s'][mt2][n][cc][n][n][n][n][n][n][n][n][n][n][n][n]^

F Oh about during the war?

S Yes [ns].

S That/'s <right> [s][ss][ds][e0][mcopxp][x][p][mt2][cc][a].

F <With> uh Steve McQueen and those guys who escaped.

F The Great Escape?

F <That>^

S <No> [ns].

F Oh.

F The ones who were war prisoners?

F No.

S No [ns].

F See I don't know.

S Oh man [ns]!

S (well I k) I wish I can remember

[*s][cs][ds][e1][mcxs'][x][s'][mt2][oc][*cxy][x][#y][t2][cc][cc].

F Well>

S I can/n't stand it [s][ss][ds][e0][mob2xy][x][y][mt4][cc][cc]!

F Don't get mad.

S (you) You know what/'s it (uh)

[*s][cs][ds][e1][mcx*s'][x][*s'][mt2][*oc][copxp][x][p][t2][cc][cc][cc]^

+ tape ends

Subject 3

Conversation Sample 2

S=Subject, F=Family Member

2/8/93

F You thought what?

S I thought (uh) doctor and what

[*s][cs][con][e1][mcx*s'][x][*s'][mt2][oc][cc][n][cc][cc]?

F Other health care professionals nurses <people> who work in health care settings and have access to drugs.

S <Oh> [ns].

S I don't see (uh) [*s][ss][ds][e0][mcx-y][x][-y][mt3][cc]^

F <Any> body else?

F No.

F It was just <doctors>.

S <Oh ok> [ns].

S <Good %whew> [ns][e0][a].

F <I think> probably because it's the most dramatic.

S Yea [ns].

F uh Because you would think a doctor would^

S Yea [ns].

S (I mean uh so uh) Should health think so [s*][ss][yn][e0][mc*xy][*x][y][mt3][n][ad]?

F Patients?

S Yea [ns].

S (I mean) Yes but I don't know [es].

S I guess so but [es]>

F You know I I think if you know if they're in a program and and they're and they're straight and they they're testing clean.

F I mean it's like any other thing wh you know you think a doctor should tell you that he's under psychiatric care or you know going to a <therapist>ˆ

S <Mhm that/'s right> [s][ss][ds][e0][mcopxp][x][p][mt2][cc][a].

F <or> you know there's a whole bunch of things and as long if it's out of control then you should know but if it's out of control he's probably not in a program like this so.

S Mhm [ns].

S (but) Funny I (uh you know) yes [*ns][e0][a][cc].

F Yea.

S I surprisingly because no ma (I mean) [*ns][e1][ac][cc][ad][cc][a][n]ˆ

F I think he's that guy who said yes is sort of answering his own personal needs.

F I mean he feels like he has to be honest in every way <in his> life because he was fooling himself and everybody else for so long so you know maybe for him it>

S <Mhm> [ns].

F But but that he can always do that.

F He can tell his own patients if that's what he feels he <needs>.

S <XXX>.

=impossible

F Why make it mandatory?

S Yea [ns].

S <Right> [ns].

F <But> you know I'm not going to say on this tape who it is but you know there's somebody in m our fam my family who's a doctor who is a drug addict.

F Remember?

F From you know that my parents <had to deal with>?

S <Oh yea> yea that/'s right [s][ss][ds][e0][mcopxp][x][p][mt2][cc][a].

F And you know I never I always would hear these stories about everybody being really concerned about this one member of the family and you know and all that stuff.

F And I remember when I was little as this was kind of was revealed to me more and more thinking gosh how could a doctor>

F How could that happen?

F But you could understand they're <human and>^

S <No yea> [ns].

F they have <their own>^

S <I> [*ns][e0][cc]^

F and they <have easy> access to it.

S <Mhm yea> [ns].

F That's the uh that's the difference.

S Right but (I mean) should know better not (better not I mean you know) [*s][ss][ds][e0][mphc-x*y'][-x][*y][mt3][cc][cc][cc].

F Mhm.

S I know a doctor bad (bad uh guh) drug/s (you know) [*s][ss][ds][e0][mcxy][x][y][mt2][cc][cc][n][a][n].

F Well it's like a doctor that's overweight.

F They know it's bad for them but they're human or one that smokes or doesn't eat properly nutrition wise or doesn't get enough sleep.

S Mhm [ns].

F And they know all the>

F But you're right.

F I mean this is pretty dramatic.

S <Yea> [ns].

F <But> they're just human beings.

S Yea [ns].

S (well) Remember (n) nose spray [s][ss][yn][e0][mcxy][#x][y][mt1][a][n]?

S I [*ns][e0][cc]>

S <Mhm> [ns].

F <Yea>.

S But not now (so) [ns][e0][cc][ad][ad].

F Kicked the habit.

S (uh) Hard [ns][e0][a].

S I (re) know hard [*s][cs][ds][e1][mcx*s'][x][*s'][mt][oc][cc][a].

F You don't go into intending it to be an addict.

F You probably start one night.

F You're tired.

F <You> need to <stay up>.

S <Yea> <oh great> [ns]!

S <I remember> [*s][ss][ds][e0][mcx-y][x][-y][mt2][cc]^

F <Had to be up> all night.

S (great uh uh) Great feeling (and I uh you know great feeling) [ns][e0][a][n].

S (now) What/'s a name [s][ss][wh][e0][mcopxp][x][p][mt2][what][cc][n]?

S (uh good uh probably) Good X job/*'s great [*ns][e0][a][n][a].

=sounds like ploy or employ or poy

F Yea probably feel like they're doing even better at <heightening> their^

S <Yea that/'s yea> [*s][ss][ds][e0][mcopx-p][x][-p][mt2][cc].

F They're not all tired and dragged out.

S <Mhm> [ns].

F <Like> the first time you used nose spray.

F All you knew is that gee I can breathe <better>.

S <Breathe> <yea> [*s][ss][ds][e0][mob1-x][-x][mt1].

F <You weren't> thinking oh I'm going to have to use this stuff for the next ten years.

S Yea that/'s right [s][ss][ds][e0][mcopxp][x][p][mt2][cc][a].

S You/*'s (uh a a I) not habited [*ns][e0][cc][ad][a]?

F Do am I addicted to anything?

S Yea XX [ns].

=impossible

S (I mean) <I> [*ns][e0][cc]^

F <Addicted>?

F Uhuh.

F Food.

F Well it's the XX I mean everybody <has their> own little>

=impoossible

S <Guess so> [es].

F <You know> some people are addicted to uh you know bad relationships.

S <Huh> [ns]?

F I mean you know>

S Yea [ns].

S (you know remember uh) Phasey (uh) want/*3s to see (uh) people (uh) [*s][cs][ds][e1][*mcxs'][x][s'][mt1][oc][cxy][#x][y][t2][n][n]^

F Uh drug <testing>?

S <Drug/s> yea [ns][e0][n].

F In the work place?

S That/'s right [s][ss][ds][e0][mcopxp][x][p][mt2][cc][a].

S (not remember) No don't do it [s][ss][i][e0][mob2xy][#x][y][mt3][cc].

F Yea what was your reasoning?

F Why didn't you want to?

S Because (uh uh uh) drug/s (I mean you know) important important important important now [*ns][e1][ac][cc][n][a][a][a][a][ad].

S But now no <(you know)> [ns][e0][cc][ad].

F <Yea> was kind of a fad at the <time>^

S <That/'s right> [s][ss][ds][e0][mcopxp][x][p][mt2][cc][a].

F All the work place testing for drugs.

S That/'s right [s][ss][ds][e0][mcopxp][x][p][mt2][cc][a].

F Well did you think it was a violation of civil rights?

S (yea yea) <Yea> [ns].

F <From> a legal <standpoint>?

S <(because)> (I mean see I mean uh), Drug/s/*'s (ok) bad but (you know uh can't uh uh) I can/n't name some [*ns][e0][mob2xy][x][y][mt4][n][a][cc][cc][n].

F There are a lot of other things that are bad for people that you don't^

S Yea <like (uh)> [*ns][e0][cc]^

F <the work> employer doesn't say don't do that.

S (uh) What was it [s][ss][wh][e0][mcopxp][x][p][mt2][what][cc]?

S (you know) What/'s (uh), [*s][ss][wh][e0][mcopx-p][x][-p][mt2][what]^

F I don't know.

S (well uh) College or (uh) [*ns][e0][n][cc]^

F If you're in college uh marijuana?

S Yea [ns].

S (you know I I mean same uh) Heroin/*'s not same [*ns][e0][n][ad][a].

F True.

S Not <same> [*ns][e0][ad][a].

F <There's> a big difference between using marijuana and using heroin.

S Yea [ns].

S (and uh you know ok) Drug/s what/'s (uh) choice (you know) [*s][ss][wh][e0][mcopxp][x][p][mt2][n][what][n]?

F Where you draw the line?

S (well should should) Should (uh see uh you know) heroin [*ns][e0][n]?

S Yea [ns].

S Testing [ns][e0][n]?

S Yes (and you know) [ns].

F It also makes a difference what kind of job.

F I mean obviously people who drive buses^

S That/'s <right> [s][ss][ds][e0][mcopxp][x][p][mt2][cc][a].

F <need> to be tested.

S Matter of fact (I remember) <(uh) Centel> [*ns][e0][n][cc][n][n]^

F <People who are vice presidents> of Centel.

F Who cares?

S <(but) I> [*ns][e0][cc]^

F <It doesn't> affect their job performance.

F Probably enhances it.

=both laugh

S Mhm yea [ns].

S (I I remember uh s uh) Safety (uh) <recommend> [*s][ss][ds][e0][mc-x-y][-x][-y][mt1][n]^

F <The> safety committee?

S Yea <recommend/ed> [*s][ss][ds][e0][mc-x-y][-x][-y][mt2]^

F <You were>^

S (uh) Should (uh dro) yes not have to job [*s][ss][ds][e0][mob2-xy][-x][y][mt4][cc][n]

F Define specific jobs where it matters?

S Yea yea [ns].

F Were you were you were were you chairman of that?

S Yea [ns].

F So I guess your opinion got adopted.

S I don't think [*s][ss][ds][e0][mcx-s'][x][-s'][mt3][cc]>

S <I don't know> [es].

F <Forced it down> their throats.

S Yea that/'s right [s][ss][ds][e0][mcopxp][x][p][mt2][cc][a].

S Oh no [ns]!

S Not should (uh) never [*ns][e0][cc][cc].

F Oh.

S Yea [ns].

+ tape ends

Subject 3

Conversation Sample 3

S=Subject, F=Family Member

3/29/93

S Ready [es]?

F Mhm.

S (uh I think oh obvious well) I think (uh time uh) late time (you know uh) night say or (two) one two (uh) people should expect it (uh) search [*s][cs][ds][e2][mcx*s'][x][*s'][mt2][oc][mc-x*s'][-x][*s'][t1][oc][cxy][x][y][t2][cc][a][n][n][cc][a][a][n][cc][n].

S (but) I remember (uh) Chicago I saw (uh I uh) black (I know probably uh guilt I mean uh) cop probably (uh) right/s (uh) Los Angeles [*s][cs][ds][e1][mcx*s'][x][*s'][mt2][oc][mcxy][x][y][t2][cc][n][cc][a][n][ad][n][n].

S (and uh so) Very careful [*ns][e0][ad][a].

S (uh but) I think people (uh you know) a night ok [*s][cs][ds][e1][mcx*s'][x][*s'][mt2][oc][cc][n][a][n].

S Not (you know) because time (well hey) policemen (well you know hey you know you know uh) crime here [*ns][e1][ac][ad][cc][n][n][n][ad].

S Understand [es]?

F Yea I do.

F I mean that you that late at night where in the incidence of high crime people should expect it because <it's a special> situation and you you've got to be careful not to abuse it the police.

S <Yea that/'s right> [s][ss][ds][e0][mcopxp][x][p][mt2][cc][a].

F Like you know what how it's been abused before.

F I agree.

F I mean I think I mean it's not to me it's not that much difference different although you know you do have to be really careful where it goes and you have to trust it while being supervised.

F But like when you go into an airport and everybody's searched for you know metal and stuff.

F Well I mean I guess somebody could say that's violating my constitutional rights.

F Not you know they don't have any reason to suspect that I have>

F But I've got to submit to it and if I go off then they start taking my belts off and my you know.

F Well so but uh there's a higher you know danger of too many people getting hurt and killed and stuff that you got to infringe a little bit to protect the larger good.

F But you know I mean you could say that's just one step and then uh what's the next step?

F You know the whole A C L U argument which I buy in most areas but this.

F It's too too>

F Like in Evanston the police know who the major who who are the gang members and uh they they purposely try to harass them.

F They try to stop them.

F They try to do everything they can to make life hard on them here so let's get out of here.

S Mhm [ns].

F And I think that's fine.

F I mean you can be a gang member you should be harassed.

F I mean you know these things are>

F Oh you know.

S Yea [ns].

S (uh) XX agree/ed [*s][ss][ds][e0][mc-x-s'][-x][-s'][mt2].

=impossible

S (you know l uh) Maybe (should uh) cop should (uh) list (you know no no no no) no rule/s [*s][ss][ds][e0][mob2xy][x][y][mt2][ad][n][a][n].

F But I'm sure they have very specific rules.

F Like at Kalamazoo where a mother said they're busting them before they sell the drugs just after watching them to know that they're aware that drugs are being sold.

F I mean they said they have to do they have to you know really have just the right people who are really going to follow the procedures exactly.

F And there'd probably be some abuse of it but^

S Yea [ns].

S (but I mean I you know uh) Amendment/'s great but (uh) bend (ok) [*s][ss][con][e0][mcopxp][x][p][mt2][mob2-x-y][-x][-y][mt1][n][a][cc].

S (because uh) I don't think today (uh) maybe wrong [*s][cs][ds][e1][mcx*s'][x][*s'][mt3][oc][cc][n][ad][a].

S (but you know) People watch (uh) U (uh) C A [s][ss][ds][e0][mcxy][x][y][mt2][n][n][n][n]^

F A C L U?

S C (yea) watch can/n't (uh uh) criminal [*s][ss][ds][e0][*mc-xy][-x][y][mt3][n].

S (w uh wai uh) Wait a minute [s][ss][i][e0][mob1x][#x][j][mt2][cc][n].

S Should release [*s][ss][ds][e0][mob2-x-y][-x][-y][mt2].

F Yea they they're being a watchdog so it's going the rights are going to be pretty well protected just because^

S Yea [ns].

F Organizations like the A C L U are watching.

S Right [ns].

F But but like I did sympathize I mean with the people who lived there who feel like they're victims <because> they can't even go out.

S <Right> [ns].

F They can't do anything.

F They and who's protecting their rights?

S (that/'s) That/'s right [s][ss][ds][e0][mcopxp][x][p][mt2][cc][a].

S I agree [es].

S (uh) Should (think I mean) think (uh) law (law uh s uh people) good people (you know) should relax [*s][cs][ds][e1][c-x*s'][-x][*s'][mt2][oc][op2x][x][t2][n][a][n].

S (because uh uh one time I mean thats uh gos arou I mean) You one time will live [*s][ss][ds][e0][mop2x][x][mt2][cc][a][n].

F Yea.

S (so should uh) Should [*ns][e0]^

F Feel safe <or secure>?

S <Safe> (uh) yea [ns][e0][a].

S (uh because) One life [ns][e0][a][n].

F Yea once you've lost it that's it.

S That/'s right (yea) [s][ss][ds][e0][mcopxp][x][p][mt2][cc][a].

F And on that brilliant note.

+ tape ends

Subject 3

Conversation Sample 4

S=Subject, F=Family Member

3/29/93

S (but ok but) Suppose (uh) people hurt [*s][cs][ds][e1][mc-x*s'][-x][*s'][mt1][oc][ob2x-y][x][-y][t2][n].

S (I uh wu) That/'s it [s][ss][ds][e0][mcopxp][x][p][mt2][cc][cc].

S (uh) I think (should uh should uh) family should help [*s][cs][ds][e1][mcx*s'][x][*s'][mt2][oc][cx-y][x][-y][t2][cc][n].

F Should help pay^

S Yes [ns].

F When people are hurt?

F Like if they are in an accident <or> something like that or get shot or they should h>

S <Yea> [ns].

F Yea well that's a good point.

F But other than that <I mean> you know>

S <No> [ns].

S (I mean) Hey [ns]^

F XX bad seeds.

=impossible

S That/'s <(you know)> [*s][ss][ds][e0][mcopx-p][x][-p][mt2][cc].

F <Right>.

S (uh) I know can/n't control it [*s][cs][ds][e1][mcx*s'][x][*s'][mt2][oc][ob2-xy][-x][y][t3][cc][cc].

F Right.

S (I mean) Chris <%wo> [ns][e0][n].

F <Right>.

S (I mean you know but uh uh now) How old should (you know uh) maybe [*ns][e0][ad][a][ad]>

S How much [es]?

F <Eighteen>.

S <Eighteen> [ns][e0][n].

S (m) That/'s it [s][ss][ds][e0][mcopxp][x][p][mt2][cc][cc].

S (and well) Maybe <old/er> [ns][e0][ad][a].

F <Up to> the age of eighteen?

S <Huh> [ns]?

F <Do you have to> do you have to>

F I <really> disagree.

S <(well)>^

F I just don't think this is>

F I mean besides the constitutional questions about you know punishing people who actually did this stuff I just think it's wr>

F I mean I just think it's not an effective way to deal>

F Because when you're dealing with kids that age like punishing the par I mean you know.

F If you want to force people into programs that might help them deal with stuff.

F Ok that's one thing.

F Say ok this happens you must go through I don't know some kind of>

F <But> to punish them I mean what that's <not going> to help anything.

S <(but)> <That/'s right> [s][ss][ds][e0][mcopxp][x][p][mt2][cc][cc].

S (but) Say kill/ed (uh uh) [*s][cs][ds][e1][mc-x*s'][-x][*s'][mt1][oc][ob2-x-y][-x][-y][t2]^

F Yea your kid killed my kid?

S Yea [ns].

F You should have to pay.

F You should have something take taken some money a check.

S (well I mean) Should [*ns][e0]>

S (I mean) That/'s it (you know) [s][ss][ds][e0][mcopxp][x][p][mt2][cc][cc].

S (uh) School (you know uh) absence [ns][e0][a][n].

S So what [es]?

S (I mean you know so I mean) I don't know [es].

S (wh harm) What/'s harm [*s][ss][wh][e0][mcopxp][x][p][mt2][what][n]?

F Well she said it was good because it brought it to her attention.

F But you <know do you> need to have that?

S <Yea (well) X> [ns]^

=impossible

F Aren't there other ways to bring this to her attention?

S (Mhm) yea [ns].

S I don't think should pay [*s][cs][ds][e1][mcx*s'][x][*s'][mt3][oc][ob2-x-y][-x]

[-y][t2][cc].

S (uh) Should not pay [*s][ss][ds][e0][mob2-x-y][-x][-y][mt3].

S (but uh) People I think should (you know)

[*s][cs][ds][e1][mcx*s'][x][*s'][mt2][oc][n][cc]>

S (like) Suppose (uh) kill/ed (uh) Mikey (say) [*s][cs][ds][e1][mc-x*s'][-x][*s'][mt1]

[oc][ob2-xy][-x][y][t2][n].

F Yea.

S (uh) Gun [*ns][e0][n].

F Mhm.

S (sh wu) How [ns][e0][how]^

F Get it.

S get it [*s][ss][wh][e0][mop3-xy][-x][y][mt1][cc]?

F Oh see that's the one area I agree with.

S <Yea> [ns].

F <If it's> because of a gun that the parents have in the house then I think they should be locked up.

F And I mean that I agree but that's the X feel so sorry about handguns.

=impossible

F Yea so maybe I'm just picking and choosing the things I want to hold them responsible for.

S (well) No <because> [*ns][e0][cc]^

F <That's the> that's their thing.

F They they do have control over access to that gun.

S Yea <that/'s right> [s][ss][ds][e0][mcopxp][x][p][mt2][cc][cc].

F <Which> they have the ultimate control by not having it <in the> first place.

S <Yea> [ns].

S (but I think should I mean you know how) I don't know how (uh) money (gu I mean) kill/ed [*s][cs][ds][e1][mcx*s'][x][*s'][mt3][oc][ob2*x-y][*x][-y][t2][cc][ad][n].

S I don't know how much [*s][cs][ds][e1][mcx*s'][x][*s'][mt3][oc][cc][ad][cc].

S (I mean but) Say not (uh) like (uh) stroke [*s][cs][ds][e1][mc-x*s'][-x][*s'][mt1][oc] [c-xy][-x][y][t2][n].

S (so) Say (uh uh) doctor (you know) %bla %bla (uh) XX <(you know)> [*s][ss][ds][e0][mc-xy][-x][y][mt1][n].

=impossible

F <Yes> <XX>.

=impossible

S <No> [ns].

F <But uh>^

S <(so) XX you X> [ns][e0][cc].

F I don't know what else.

F I'm just thinking.

F I mean just think of all this stuff your kids can be>

F You could do be doing all the right things.

F I mean being as good a parent as could be done and your kids do something.

F Why why is it your responsibility because somebody with their own free will just took all the stuff that you've raised them with and said screw that I'm going to go do <this>.

S <Yea> [ns].

F Why is it your fault?

S I agree [es].

S (well I mean uh) Say (uh uh) children (one two three) four age [*s][ss][ds][e0] [mc-xy][-x][y][mt1][n][n][n].

F Five years old?

S Yea [ns].

S (you know) Done [ns][e0][a]?

S How done [*ns][e0][ad][a]?

F Maybe.

S Yea [ns].

F <XXX>^

=impossible

S <(but not)> Not much [ns][e0][ad][cc].

F Yea.

S (you know) I don't know [es].

F But by the time I mean they're mostly talking about kids who are old enough to really do you know teenagers and by then how much control do you have over them anyway?

S Yea [ns].

F Not like you you know have control over their every minute.

S That/'s right [s][ss][ds][e0][mcopxp][x][p][mt2][cc][cc].

F And what they're really holding you responsible for something that probably happened a long time ago when they they were being raised and how is that addressing <you know> ^

S <That/'s right> [s][ss][ds][e0][mcopxp][x][p][mt2][cc][cc].

F <to me XX> ^

=impossible

S <Not (go) good> idea [*ns][e0][ad][a][n].

S No <sorry> [ns][e0][a].

F <Need to> support families you know.

F It's also so complicated because some people would really like to be better parents and spend more time but they're poor and they are struggling to exist and they're struggling to put <food> on the table.

S <Mhm> [ns].

F And you know what are they supposed to do you know?

S Yea [ns].

S Funny [ns][e0][a].

S I thought good idea but now (now) <not> [*s][cs][con][e1][mcx*s'][x][*s'][mt2][oc][cc][a][n][cc][ad][ad]^

F <Yea> yea.

F You mean just when you hear about it you <XX>?

=impossible

S <Yes> yea <(but)> [ns]^

F <Same> here.

S (but uh) Not a good (i) idea [ns][e0][ad][cc][a][n].

S X.

=impossible

F Well we can talk about anything we want.

F We could talk about Chris even though that's XX.

=impossible

S I don't want [*s][ss][ds][e0][mcx-y][x][-y][mt3][cc]^

F Actually know how to get hold of him.

S Huh [ns]?

S I don't know [es].

S (I) Calm/*ed down (you know) [*s][ss][ds][e0][*mphop2x][x][mt2][cc].

S (uh uh) Spoil/ed I think [*s][cs][ds][e1][mcx*s'][x][*s'][mt2][oc][ob2-x-y][-x][-y][t2][cc].

F I don't think it's spoiled.

F I think we have to <X>^

=impossible

S I do [es]!

F I think he is a very temperamental nature.

S Yea [ns].

F And it's hard to get a handle on how to deal with a nature that is so temperamental.

F It's just so %ha one minute and you know e every minute it's something different and I don't know.

F I don't feel he's spoiled.

F He just is.

S (you know uh) Go got dame <(you know)> [*s][ss][con][e0][mob1-x][-x][mt1]

[mop3-xy][-x][y][mt2][n].

F <That> was his own money.

S Yea [ns].

S (but but money how) How money (money) [*ns][e0][ad][n]?

F It was from uh <christmas>.

S <Yea or> Peter [ns][e0][cc][n].

F Yea.

S (sh) Should/n't give (well) money [*s][ss][ds][e0][mop3-xy][-x][y][mt3][n].

S (I mean uh) Wait a minute [s][ss][i][e0][mob1x][#x][j][mt2][cc][n]!

+ tape ends

Subject 3

Conversation Sample 5

S=Subject, F=Family Member

5/5/93

S (ok) Ready [es]?

S I think good idea but (I no) I don't think can do it [*s][cs][con][e2][mcx*s'][x][*s'][mt2][oc][mcx*s'][x][*s'][mt3][oc][ob2-xy][-x][y][t2][cc][a][n][cc][cc][cc].

S I don't know why [es].

S (I mean) Good idea [ns][e0][a][n].

F Across the board?

S (well) No maybe (you know uh) safety like [*s][ss][ds][e0][mc*x-y][*x][-y][mt1][ad][n]>

S I don't know [es].

F Keeping public safety and gov yea I mean I I think to me at least at the start like I think government has sort of gotten way beyond probably what government should do anyway.

F Or at least some of the basic things that people expect to get for taxes.

F But once it's in it it's hard to sell.

F It seems to me there needs to be a line somewhere between XX basic government services that I think government should keep and perform like police and fire.

=impossible

S Mhm [ns].

F And garbage and those kind of things because those are such basic services.

F Well garbage maybe not.

F But then there's a whole bunch of other things like that those examples they were giving like uh dentists and you know job training for welfare recipients and stuff like that.

F But there's no reason government should do that.

F There's people in the private sector <that> do that far better.

S <Mhm> [ns].

F But I think the traditional government like police and fire X>

=impossible

F Because you're not just like X like policemen you're not it's not just public safety.

F There's a whole set of community>

F You want them to be part of a community fabric and the values of the community and stuff that I just don't think a private company can just perform.

S No [ns].

S (uh I rem) I remember job (you know telephone like uh) telephone usually (uh telephone) yes you yea (you know) [*s][ss][ds][e0][mcxy][x][y][mt2][cc][n][n][ad][cc].

S People (uh uh) all the time [*ns][e0][n][cc][cc][n].

S (I mean you know who) Who (you know uh) telephone [*ns][e0][cc][n].

F Everybody has a <telephone>?

S <Yea> [ns].

F Except that there was a thing in the paper today in Chicago.

F One out of every twelve people doesn't have don't have telephones in Chicago.

F One out of every twelve households.

F It was the same population as Evanston Des Plaines and Skokie maybe put together.

F That's how many people in Chicago don't have phones.

S Mhm [ns].

F Anyway <so there>.

S <Yea> (but uh I mean uh like uh) I can't like (uh like uh) [*s][ss][ds][e0] [mcx-y][x][-y][mt3][cc]^

F The thing that everybody needs then government should^

S No (well) <(uh)> [ns]^

F <do>^

S (s uh)^

F basic^

S See (uh) like (uh tele uh) no bad example [*s][cs][ds][e1][mc-x*s'][-x][*s'][mt1][oc][c-xy][-x][y][t1][ad][a][n].

S (uh) Garbage [ns][e0][n].

F Ok.

S (you know) Like how much [*s][ss][wh][e0][*mc-xy][-x][y][mt1][how][cc]?

S (uh) Maybe you (uh) garbage/*'s fifty (ok) say and my garbage/*'s hundred dollar/s [*s][cs][con][e1][mc-x*s'][-x][*s'][oc][ad][cc][n][n][cc][cc][n][a][n].

S (so) Better (you know uh) service yes [ns][e0][a][n].

S See (uh) then there/'s <no> [*s][cs][ds][e1][mc-x*s'][-x][*s'][mt1][oc][ob1-x][-x][t1][cc][cc][ad]^

F <So> who should do it^

S <(well) I don't know> [es].

F <in that case>?

S (but) <Make sure> [*s][cs][ds][e1][mc2-x-s'][-x][-s'][mt2][oc]^

F <Government or private>?

S (well I I mean) Make sure yes yes [*s][cs][ds][e1][mc2-x-s'][-x][-s'][mt2][oc].

S Oh I don't want to (uh uh) [*s][cs][ds][e1][mcx*s'][x][*s'][mt3][oc][cc]^

F You X you want to make sure you're service is^

S Yea [ns].

F well performed if you have if you need the service a lot?

S Yea [ns].

S (well uh) Money (uh) hundred/s [*ns][e0][n][n].

S Oh I don't want to [es].

S (uh) Say (uh) people not want to [*s][cs][ds][e2][mc-x*s'][-x][*s'][mt1][oc][*cx*s']

[x][*s'][t2][oc][n].

S No thank you [ns].

S (because) Money but got it [*s][ss][con][e0][mop3-xy][-x][y][mt2][n][cc][cc].

S Really (c) can/n't guess [*s][ss][yn][e0][mc-x-y][-x][-y][mt3][ad]?

S Yes X no [ns].

F Well no but think of a different way of explaining it.

S Like (uh ok) bid/s [*s][ss][ds][e0][mc-xy][-x][y][mt1][n].

F Yea.

S Ok [ns]?

S (ok) Me know (uh) <(uh)> [*s][ss][ds][e0][mc*x-y][*x][-y][mt1][cc]^

F You're a high bid?

S (yea) No (uh) like (uh) fire (uh hundred) dollar/s (I mean) hundred/s [*s][ss][ds][e0][mc-xy][-x][y][mt1][n][n][n].

S You (z uh) [ns][e0][cc]^

F Who am I a bidder company bidding?

S (mhm) I can/n't understand [es].

S (oh uh) Like (uh) fire (ok) [*s][ss][ds][e0][mc-xy][-x][y][mt1][n].

F Let's not do fire.

F Let's do garbage <XX>.

S <Ok garbage> [ns][e0][n].

S How much (uh) big (uh) garbage [es]?

F You own a big apartment <building>^

S <No> yea ok [ns].

F with tons of garbage.

S Yea [ns].

F And I'm one house.

S That/'s right [s][ss][ds][e0][mcopxp][x][p][mt2][cc][cc].

F <Ok>.

S <Now> better (oh uh) people not want to know thank (uh) bid/s no [*s][cs][ds][e1][*mcxs'][x][s'][mt2][oc][cx*s'][#x][*s'][t2][oc][ob2-xy][-x][y][t1][a][n][n][a].

F You want to have the city do it?

S (well) No people (y) a better (uh) garbage yes [*ns][e0][a][n][cc][a][n].

S Suppose (uh) bid (y uh) say/*3s (h) how (uh) please help me [*s][cs][ds][e2][mc-x*s'][-x][*s'][mt1][oc][*cx*s'][x][*s'][t1][oc][c-xy][-x][y][t1][n][ad][cc].

S Oh no thank you [ns]!

S Suppose (uh congr uh k uh) people [*s][cs][ds][e1][mc-x*s'][-x][*s'][mt1][oc][n]>

S Oh gees [ns]!

S Like suppose what to do garbage garbage garbage [*s][cs][ds][e2][mc-x*s'][-x][*s'][mt1][oc][c-x*s'][-x][*s'][t1][oc][ob2-xy][-x][y][t2][cc][n][n][n].

F Yea.

S (ok uh) Contract no [*s][ss][ds][e0][mob2-x-y][-x][-y][mt1].

S <Not want to> [*s][cs][ds][e1][*mc-x*s'][-x][*s'][mt2][oc]^

F <Oh so who> do you complain to?

S (well suppose uh) Suppose (uh) garbage/*'s not pick/*ed (u) up [*s][cs][pa][e1][mc-x*s'][-x][*s'][mt1][oc][*phop3xy][#x][y][t3][n].

F Yea right.

F Then what?

S Yea [ns].

F Well the city's still responsible because the city contracts with the person and <they can> fire them.

S <Ok> yea (but ok) people yes yes (people) XX [ns][e0][n]^

=sounds like made her sh

F Oh you have to like make sure you evaluate and see if the service is good?

S No [ns].

S (uh let's see) No [ns].

F Well I'll get you on a new track.

S Yea [ns].

F See like with garbage for example because the city Evanston looked at this a you know not too long ago.

F And you you can get people to bid on city services.

F They'll show you know those kind of savings they talked about three hundred thousand dol you know.

F But the thing is what somebody comes in and bids on in the first year in order to get the bid you don't have any guarantee that they'll keep performing at that level whereas if you're doing the service you have some control over costs.

F If you contracted out yea they may come in with a low bid and then in year three down the road they're going to say you know well I'm sorry but our costs are you know it's going to be you know much higher and <down the road> ^

S <Yea the bottom> [ns][e0][cc][n]^

F <Right>.

S <Mhm yea> [ns].

F And down the road you may end up by pri you know and now you don't have any city staff to do it.

S No [ns].

F Oh!

S Boy [ns]!

+ tape ends

Subject 3

Conversation Sample 6

S=Subject, F=Family Member

5/5/93

S What you think/ing about [*s][ss][wh][e0][*mcxp][x][p][mt2][what][cc][cc]?

F Huh?

F I mean I already feel nervous about me looking for a job and at forty five.

F I think it's I think it is hard.

S Mhm [ns].

F I mean look at the impact of Centel's merging with Sprint.

S <Yea that/'s right> [s][ss][ds][e0][mcopxp][x][p][mt2][cc][cc].

F <And the people> who were let go and now who's going to have the hardest time getting another job?

F uh Let's pretend Margie was was let go uh compared to Vodak.

F Who do you think would have a harder time getting a job?

S (uh) Vodak [ns][e0][n].

S Right [ns]?

F Yea.

S Yea (be) because why [es]?

S Because (uh) [ns][e0][cc]^

F Higher <salary>.

S <High/er (s)> salary [ns][e0][a][n].

S (so I mean) I understand [es].

S (uh) Suppose <X> [*s][cs][ds][e1][mc-x-s'][-x][-s'][mt1]^

=impossible

F <But> he isn't>

F What's the higher salary reflect?

F Not just the years of being there.

F Sh shouldn't it be reflect at least some portion of it reflect years of experience and how good <he is>?

S <Yes> yes [ns].

S (but uh) Suppose (uh you know uh) job/*'s not small job [*s][cs][ds][e1][mc-x*s'][-x][*s'][mt1][oc][n][ad][a][n].

F Yea.

F Sort <of> interchangeable anybody can do it?

S <Yea> yea [ns].

S (and so why you hire uh) Boss say/*3s (uh) why you hire expensive dope [*s][cs][ds][e1][*mcx*s'][x][*s'][mt1][oc][*ob2xy][x][y][t1][n][cc][cc][a][n]?

S Not a good idea [ns][e0][ad][cc][a][n].

F You can make your as the persons higher you can make your budget go farther if you hire people at the lower end.

S Yea [ns].

S (uh but but) Experience (ok) I/*'s good X but high/er salary/*'s not X bad (I mean) [*ns][e0][n][cc][a][cc][a][n][ad][a].

=impossible

F It's out of line with whatˆ

S Yea [ns].

F how much the experience is worth?

S I think so (I think so) [es].

F So then older people might as well just can it because they're going to be lose out every time.

S (well uh) Maybe not [ns][e0][ad][ad].

S (I mean sh you know) Should see (uh) good (uh) people (good you know) [*s][ss][ds][e0][mc-xy][-x][y][mt2][a][n].

S I don't know (uh) [es].

F I think that ja that discrimination goes beyond just the pay because I bet look at that guy that was on there would be willing to earn a lot less than what he was earning when he got laid off.

F I don't think <that's really the question>.

S <That/'s right> [s][ss][ds][e0][mcopxp][x][p][mt2][cc][a].

F <So but it's> older^

S <(but but)> No wait <a minute> [s][ss][i][e0][mob1x][#x][j][mt2][cc][n].

F <XX wants an older person>.

=impossible

S Suppose (oh but) goodbye not [*s][cs][ds][e1][mc-x*s'][-x][*s'][mt1][oc][ad]>

S That/'s it [s][ss][yn][e0][mcopxp][x][p][mt2][cc][cc]?

S (uh) Sorry (w h) please hire [*s][ss][yn][e0][mob-x-y][-x][-y][mt1][a]?

S (you know) Maybe goodbye [ns][e0][ad].

S How long (uh) go/ing [*s][ss][wh][e0][*mob1-x][-x][mt2][how][a]?

S (you uh) You did/n't understand no [s][ss][ds][e0][mcxy][x][y][mt3][cc][n].

F What were the circumstances under <which he> was fired?

S No no [ns].

S Like no (no no h uh) salary small (ok) [*s][ss][ds][e0][mc-xy][-x][y][mt1][a][n][a].

S Say hire [*s][cs][ds][e1][mc-x*s'][-x][*s'][mt1][oc][ob2-x-y][-x][-y][t1].

S How long [es]?

S (uh) Maybe one two year/s [ns][e0][ad][a][a][n].

S That/'s it [s][ss][yn][e0][mcopxp][x][p][mt2][cc][cc]?

S Goodbye [ns]!

S (so)^

F To to retire <you mean>?

S <No no> no no [ns].

S (uh h uh buh uh) Want to job [*s][cs][yn][e1][mc-x*s'][-x][*s'][mt1][oc][n]?

S Yes [ns].

S How much (ok) [es]?

S %bla %bla %bla (ok) [ns].

S When one year [*ns][e0][cc][a][n].

S Goodbye because peanut/s [*ns][e0][cc][n].

S Oh no thank you [ns].

S (so) Go/ing [*s][ss][ds][e0][*mob1-x][-x][mt2].

F You mean they dont want to hire somebody>

F Well but then that then the person gets caught in this no man's land of you're over qualified for this job because you know we don't pay that much and if we pay you so little we know you'll leave.

F Is that what you mean because^

S <Yea> oh [ns]^

F but he's not going because he can't find a job anywhere.

S Maybe but maybe (uh) <good> [ns][e0][ad][cc][ad][a]^

F <So> that's what's going to happen to me that^

S (well I mean) <I don't> [*ns][e0][cc]^

F <Then I'm> going to go look for a job <XX going to say> oh you could be a lawyer.

S <Like today> [*s][ss][ds][e0][mc-xy][-x][y][mt1][n].

F You could be earning a lot more than this.

F Why would I hire you because you'll probably just leave.

S (ok now)^

F So.

S (so good uh uh) Economy/*'s bad (ok) [*ns][e0][n][a].

S Suppose good [*s][cs][ds][e1][mc-x*s'][-x][*s'][mt1][a].

S Say (uh) one year good [*s][ss][ds][e0][mc-xy][-x][y][mt1][a][n][a].

S (so) Hey [ns]ˆ

F Well but that's <the the> economy's good people at all ages are more likely to make shifts.

S <Goodbye> [ns].

F I mean how many sh how many job changes do they say people make in a life time seven or eight?

F So you're going to have people turning over all the time.

F You can't hire somebody thinking well I'm going to be really ticked off if they leave before ten years because people will always just get up and leave for all kinds of reasons.

F Money they want to go to a different part of the country they marry somebody with I mean you know.

F So I don't see why somebody in that position is any more likely to leave than anybody else.

S Because (uh) income [*ns][e0][cc][n]ˆ

F Well that's one reason but other people leave for other reasons.

S Yea but (I mean) good reason [*ns][e0][cc][a][n].

S Hey I want to money [*s][cs][ds][e1][mcx*s'][x][*s'][mt2][oc][cc][n].

F So what's this guy supposed to do I mean?

S (well) I understand [es].

S Now bad economy (you know) [*ns][e0][ad][a][n].

S I don't know [es].

S (I mean) I feel bad [s][ss][ds][e0][mcxp][x][p][mt2][cc][a].

S (I I mean) I know feel/3s [*s][cs][ds][e1][mcx*s'][x][*s'][mt2][oc][c-x-p][-x][-p][t2][cc].

S (I mean) Stroke (I mean) job gone (you know) [*s][ss][ds][e0][*mob1x][x][mt2][n]

[n].

S (so) I know feel/3s (uh) [*s][cs][ds][e1][mcx*s'][x][*s'][mt2][oc][c-x-p][-x][-p][t2] [cc].

F But you're not he's not in your position.

F He doesn't have I mean at least <you have> a basic income.

S <No> [ns].

F He doesn't.

S Yea [ns].

F So he's willing to work I'm sure for much less but you're saying nobody in their right mind would hire him at less because they figure he'll just leave.

S Yea basically yea [ns][e0][ad].

F Sort of like Axel.

F I mean he get cut off laid off but he starts cleaning houses.

F So he cleans houses for I'm sure less than <X>^

=impossible

S <(and)> Gone [*s][ss][ds][e0][*mob1-x][-x][mt2].

F And as soon as his job came back he leaves.

S Yea [ns].

F That's true.

S (I mean) Remember (uh) burn/ed up [*s][cs][ds][e1][mc-x*s'][-x][*s'][mt1][oc] [phob2-x-y][-x][-y][t3].

S Oh man gees [ns]!

S <(and) What> [ns][e0][cc]^

F <No> I was never burned up.

S Oh [ns].

F I could understand it.

F I mean I understood.

F Why what's the choice?

S Yea [ns].

F It's obvious.

F So I think that instead a company ought to look at if they can get somebody who's well qualified for <less> for any period of time <they're> winning.

S <Yea> <(but)> [ns]^

F You <know they're they're ahead of the game>.

S <That/'s right> [s][ss][ds][e0][mcopxp][x][p][mt2][cc][a].

S (but uh uh uh) Good (uh smar I mean uh) high (uh) income/*'s <not> (uh) useless [*ns][e0][a][a][n][ad][a].

F <Yea>.

+ tape ends

Subject 3

Narrative Sample 1

2/4/93

S Cinderella/*'s (uh sweeping uh scrubbing) scrub/ing

[*s][ss][ds][e0][*mop2x][x][mt2][n].

S (and uh) Hard work I think [*s][cs][ds][e1][mcx*s'][x][*s'][mt2][oc][a][n][cc].

S (and stepmo) Stepmother (uh) told make sure clean please [*s][cs][ds][e1]

[mc2x*s'-z][x][*s'][-z][mt2][oc][mphc-x*s'][-x][*s'][mt2][n][a].

S (and uh) I remember (uh) stepmother one two (uh) and dish/s wip/ing %ch %ch %ch

[*s][cs][ds][e1][mcx*s'][x][*s'][mt2][oc][*ob2-xy][-x][y][t2][cc][n][n][n][cc][n].

S (uh and uh so) I think Cinderella want/*3s to go

[*s][cs][ds][e2][mcx*s'][x][*s'][mt2][oc][*cxs'][x][s'][t1][oc][ob1x][#x][t2][cc][n].

S (uh) Where [es]?

S (well) I/*'ll tell you [es].

S (uh ok ok oh I uh) Seem/3s like (step uh) stepmother (uh) dress/*'s (uh

watchamacalit) ruin/ed

[*s][cs][ds][e1][mcy*s'][y][*s'][mt3][oc][*ob2xy][x][y][t2][n][n].

S I don't know why [es].

S (but uh uh) Decide/ed good idea I guess [*s][cs][ds][e1][oc][c-x*s']

[-x][*s'][t2][mcx*s'][x][*s'][mt1][a][n][cc].

S (and uh uh Cinderella) Cinderella/*'s (uh) broken

[*s][ss][pa][e0][*mob2xy][#x][y][mt2][n].

S (and) I don't know why [es].

S (uh but uh) Seem/3s like (uh uh) animal/s (uh dress uh) dress %boom

[*s][ss][ds][e0][mc-xy][-x][y][mt3][n][n].

S Good dress [ns][e0][a][n].

S Beautiful [ns][e0][a].

S (uh) I don't know how but beautiful [*s][cs][ds][e1][mcx*s'][x][*s'][mt3][oc][cc][ad][cc][a].

S (and uh) I remember hair put up (uh) Cinderella [*s][cs][ds][e1][mcx*s'][x][*s'][mt2][oc][phob2*x*y][*x][*y][t3][cc][n][n].

S (uh and so uh) Ball (ok) [*ns][e0][n].

S (uh) What/'s now [s][ss][wh][e0][mcopxp][x][p][mt1][what][ad]?

S (uh) Let/'s see (uh oh uh no) [*s][cs][ds][e1][mob2xy][#x][y][mt2][rc][cx-y][#x][-y][t2]>

S Wait a minute (wait a minute) [s][ss][i][e0][mob1x][#x][j][mt2][cc][n].

S (uh uh) Coach (uh) wand [*ns][e0][n][n].

S (uh) What/'s a name [s][ss][wh][e0][mcopxp][x][p][mt1][what][cc][n]?

S (uh ch) I don't know what's a name [*s][cs][ds][e1][mcx*s'][x][*s'][mt3][oc][mcopxp][x][p][mt1][cc][cc][cc][n].

S (uh but uh) People thing [*ns][e0][n][n].

S (uh) Good mother [ns][e0][a][n].

S (uh) What/'s [*s][ss][wh][e0][mcopx-p][x][-p][mt1][what]>

S I don't know [es].

S (and) Beautiful dress [ns][e0][a][n].

S (and) Magic [ns][e0][a].

S (and) Coach pumpkin (uh uh) and (uh) driver and (uh) I think (two m men) one two footman (man) [*s][cs][ds][e1][mcx*s'][x][*s'][mt2][oc][n][n][cc][n][cc][cc][a][a][n].

S (and uh so) Want to go (uh) Cinderella [s][cs][pq][e1][mcxs'][#x][s'][mt1][oc][ob1x][#x][t2][n]?

S Ball [ns][e0][n]?

S Oh yea sure [ns].

S But midnight be sure (uh) come home because (uh) coach/*'s gone and dress/*'s gone [*s][cs][i][e1][mphcx*s'][#x][*s'][mt3][ac][*ob1x][#x][t2][*ob1x][x][t2][*ob1x]

[x][t2][cc][n][ad][cc][n][cc][n].

S (and uh so) Clock %ding midnight [*ns][e0][n][n].

S (and uh) Prince and (uh) Cinderella (uh) dance

[*s][ss][con][e0][mop2x][x][mt1][n][cc][n].

S (and uh) Hear clock midnight [*s][ss][ds][e0][mc-xy][-x][y][mt1][n][n].

S (uh now) I remember (uh) Cinderella/*'s go/ing

[*s][cs][ds][e1][mcx*s'][x][*s'][mt2][oc][*ob1x][x][t2][cc][n].

S Bye [ns].

S I can/n't see [*s][ss][ds][e0][mcx-y][x][-y][mt3][cc].

S No wait [s][ss][i][e0][mob1x][x][mt1]!

S (uh not want to uh) Prince not want to [*s][cs][ds][e1][*mcx*s'][x][*s'][mt2][oc][n].

S (but and so) Run/ing and (slipper uh) one glass slipper fall [*s][ss][con][e0]

[mob1-x][-x][mt2][*mob1x][x][mt1][cc][a][a][n].

S (and uh) Prince got it [*s][ss][ds][e0][mob2xy][x][y][mt2][n][cc].

S (ok now) Let/'s see (uh uh) prince told duke see slipper fit/*3s all of (of) subject/s

[*s][cs][ds][e4][mob2xy][#x][y][mt2][rc][cx*s'][#x][*s'][t2][oc][c2x*s'z][x][*s'][z][t2]

[oc][*cx*s'][#x][*s'][t1][oc][*op2xy][x][y][t1][n][n][n][cc][cc][n].

S (and uh oh) Cinderella/*'s lock/ed up [*s][ss][pa][e0][mphop2xy][#x][y][mt3][n].

S I don't know why [es].

S Stepmother (uh di uh) that [*ns][e0][n][cc]>

S I think question (uh) that/*'s it

[*s][cs][ds][e1][mcx*s'][x][*s'][mt2][oc][cc][n][cc][cc]?

S (uh because) Stepmother (uh not) slipper not fit

[*s][ss][ds][e0][*mop2x][x][mt2][n][n].

S (but) Cinderella (uh) sure enough fit/*3s [*s][ss][ds][e0][*mop2x][x][mt1][n][ad][ad]

S (and) Glass [ns][e0][n]>

S Oh never mind [es].

S (uh) Duke oh thank god [ns][e0][n]!

S You slipper fit/*3s [*s][ss][ds][e0][*mop2x][x][mt1][cc][n].

S (and) Cinderella [ns][e0][n].

S (and) Come here [s][ss][i][e0][mphob1x][#x][mt2].

S (uh uh) I want to Cinderella come here

[*s][cs][ds][e1][mcx*s'][x][*s'][mt1][oc][*mphob1x][x][mt2][cc][n].

S (and uh) Happy (uh uh) prince and Cinderella (uh) probably marry

[*s][ss][con][e0][mop2x][x][mt1][a][n][cc][n][ad].

+ tape ends

Subject 3

Narrative Sample 2

2/5/93

S (ok uh) Cinderella/*'s (uh) wash/ing floor/s

[*s][ss][ds][e0][*mop2xy][x][y][mt2][n][n].

S (and make sure) Stepmother make/*3s good floor please

[*s][ss][ds][e0][*mob2xy][x][y][mt1][n][a][n].

S Done [ns][e0][a].

S (and) Stepmother one two people (and uh) 00:05 [*ns][e0][n][a][a][n] >

S (ok and dishes) Cinderella (uh) dish/s [*ns][e0][n][n].

S (uh) Make sure clean please (uh) stepmother [*s][ss][ds][e0][mphcx*s'][#x][*s'][mt2]

[a][n].

S Ok sure enough [ns][e0][ad][ad].

S (uh and oh no animals) Look/3s like (uh) Cinderella (good uh) like/*3s (uh)

animal/s [*s][cs][ds][e1][mcy*s'][y][*s'][mt3][oc][*cxy][x][y][t1][n][n].

S (p uh) XX not Cinderella (e uh) and dog like (uh) horse

[*s][ss][con][e0][mcxy][x][y][mt1][ad][n][cc][n][n].

=sounds like e uh

S I like horse (I mean) probably XX [*s][ss][ds][e0][mcxy][x][y][mt1][cc][n][ad].

=impossible

S (uh and) I think (I want) Cinderella want/*3s to go but dress no [*s][cs][con][e2]

[mcx*s'][x][*s'][mt2][oc][*cxs'][x][s'][t1][oc][ob1x][#x][t2][n][cc][n][ad].

S (now but) I notice I/'m [*s][cs][ds][e1][mcx*s'][x][*s'][mt1][oc][copx-p][x][-p][t1]

[cc][cc] >

S (oh uh so) Can/n't because dress (you) you got money can/n't afford it

[*ns][e2][ac][ob2xy][x][y][t2][ac][ob2-xy][-x][y][t3][cc][n][cc][n][cc].

S (but) Magic [ns][e0][n].

S (uh) Mother goodbye (you know) [ns][e0][n].

S What/'s in XX magic wand [*s][ss][wh][e0][mcopxp][x][p][mt1][what][cc][a][n]?

=sounds like the googa

S (and) Want to (uh) go [s][cs][pq][yn][e1][mcxs'][#x][s'][mt1][oc][ob1x][x][t2]?

S Yes but I can/n't because dress nothing [*ns][e1][ac][cc][cc][cc][n][cc].

S (k what what uh) Dress what [*ns][e0][n][what]?

S Oh I can do it [s][ss][ds][e0][mob2xy][x][y][mt2][cc][cc].

S Oh really [ns][e0][ad]?

S Yes watch [s][ss][i][e0][mcxy][#x][#y][mt1].

S %boom [ns]!

S Beautiful dress [ns][e0][a][n].

S (and so but how uh) How walk/ing [*s][ss][wh][e0][*mob1-x][-x][mt2][how]?

S (who whe I mean) How [es]?

S Can/n't walk [*s][ss][ds][e0][mob1-x][-x][mt3].

S Oh ok [ns].

S Want to (uh uh) carriage [*s][cs][pq][yn][e1][oc][mc-x*s'][-x?][*s'][mt1][n]?

S Yea [ns].

S (and) Pumpkin %boom [*ns][e0][n]!

S (and) Sure enough a (uh uh) footman and (uh) driver [ns][e0][ad][ad][cc][n][cc][n].

S (and) Come here (uh) Cinderella [s][ss][i][e0][mphob1x][x][mt2][ad][n].

S Coach [*ns][e0][n].

S Oh you mean my coach [s][ss][pq][e0][mcxy][x][y][mt1][cc][cc][n]?

S Yea [ns].

S Ok [ns].

S I want to go [s][cs][ds][e1][mcxs'][x][s'][mt1][oc][mob1x][#x][mt2][cc].

S But remember midnight [s][ss][i][e0][mcxy][#x][y][mt1][cc][n].

S That/'s it [s][ss][ds][e0][mcopxp][x][p][mt1][cc][cc].

S %poosh [ns]!

S Can/n't coach %boom [*ns][e0][n]!

S Gone [*s][ss][ds][e0][*mob1-x][-x][mt2].

S (so) Better come midnight (uh) ball [*s][ss][ds][e0][mob1-x][-x][mt1][ad][n][n].

S That/'s it [s][ss][ds][e0][mcopxp][x][p][mt1][cc][cc].

S Ok [ns].

S (but) Cinderella not remember [*s][ss][ds][e0][*mcx-y][x][-y][mt2][n].

S Clock/*'s tick/ing midnight [*s][ss][ds][e0][*mob1x][x][mt2][n][n].

S Ah remember should go [*s][cs][ds][e1][mc-x*s'][-x][*s'][mt1][oc][ob1-x][-x][t3].

S Oh I/'m sorry [s][ss][ds][e0][mcopxp][x][p][mt1][cc][a].

S (uh) Prince fun (uh) dance/ing (uh uh) Cinderella

[*s][ss][ds][e0][*mob1x][x][mt2][n][n][n].

S (and uh ba) Goodbye [ns].

S Wait (wait) [s][ss][i][e0][mob1x][#x][mt1]!

S No I can/n't [es].

S I/'m sorry [s][ss][ds][e0][mcopxp][x][p][mt1][cc][a].

S (but) Slipper fall down and glass [*s][ss][ds][e0][*mphob1x][x][mt2][n][cc][n].

S (uh got it uh prince prince uh) Prince got it (uh) slipper

[*s][ss][ds][e0][mob2xy][x][y][mt2][n][cc][n].

S (and) Go/ing [*s][ss][ds][e0][mob1-x][-x][mt2].

S Bye [ns].

S (so uh) Let's see (uh) prince want/*3s to (uh) slipper (uh) million/s (mil uh) people want to see (su uh watchamacalit) fit [*s][cs][ds][e2][mob2xy][#x][y][mt2][rc][cx*s'][#x][*s'][t2][oc][*cx*s'][x][*s'][t1][oc][cx*s'][x][*s'][t1][oc][*cxs'][#x][*s'][t2][oc][op2-x][-x][t1][n][n][n][n].

S (uh) Duke see who (ga got it I mean) can slipper perfect

[*s][cs][i][e1][mcx*s'][x][*s'][mt1][oc][n][cc][n][a].

S (so) People see [*s][ss][ds][e0][mcx-y][x][-y][mt1][n].

S Ok [ns].

S (and) Duke stepmother and Cinderella here (uh) house (Cinderella) [*ns][e0][n][n][cc][n][ad][n].

S (and) I think (uh) stepmother want/*3s to can/n't slipper [*s][cs][ds][e2][mcx*s'][x][*s'][mt2][oc][*cx*s'][x][*s'][t1][oc][n][n]?

S No [ns].

S (uh and) That/'s it ask/ed duke [*s][cs][ds][e1][oc][copxp][x][p][t1][mcxs'][x][s'][mt2][cc][cc][n].

S (well) I actually one Cinderella but not (uh) invite/ed [*ns][e1][*ob2-x-y][-x][-y][t3][cc][ad][a][n][cc].

=invited pronounced vited

S (uh well) I/*'m supposed to see [*s][ss][ds][e1][*mcx*s'][x][*s][mt2][oc][ob2x-y][#x][-y][cc].

S (so uh k uh) Lock/ed (uh) Cinderella (uh uh) stepmother [*s][ss][ds][e0][mob2*x*y][*x][*y][mt2][n][n].

S I want to see please (uh) duke said [s][cs][ds][e2][oc][cxs'][x][s'][mt2][oc][cxy][#x][#y][t2][mcxs'][x][s'][mt2][cc][n].

S (and) Ok ok [ns].

S (and) Sure enough fit/3s [*s][ss][ds][e0][mop2-x][-x][mt2][ad][ad].

S (and uh) Happy [*ns][e0][a]>

S (uh uh and uh) Cinderella come here (uh) castle [*s][ss][i][e0][mphob1x][x][mt2][n][n].

S (uh uh) Prince want/*3s to see you [*s][cs][ds][e1][*mcxs'][x][s'][mt1][oc][cxy][x][y][t2][n][cc].

S (and) Happy (uh) prince and Cinderella (probably) marry/ed [*s][ss][con][e0][mop2x][x][mt2][a][n][cc][n].

S Happy XX [*ns][e0][a] >

=impossible

S I don't know what/'s a name

[*s][cs][ds][e1][mcxs'][x][s'][mt3][oc][copxp][x][p][t1][cc][cc][cc][n].

S Happy good place [ns][e0][a][a][n].

S (and) That/'s it [s][ss][ds][e0][mcopxp][x][p][mt1][cc][cc].

+ tape ends

Subject 3

Narrative Sample 3

3/29/93

S (uh) Cinderella/*'s work/ing (uh) floor scrub/ing

[*s][ss][con][e0][*mop2x][x][mt2][*mop2xy][#x][y][mt2][n][n].

S (and uh) Hard work [ns][e0][a][n].

S (and uh) Stepmother (evil looks like I mean you) look/3s evil

[*s][ss][ds][e0][mcxp][x][p][mt2][n][a].

S (and) Stepmother/*'s one two (uh) ugly [*ns][e0][n][n][n][a].

S (and uh but uh) Cinderella/*'s beautiful [*ns][e0][n][a].

S (and uh uh) Dish/s stack/ed [*s][ss][ds][e0][mob2-xy][-x][y][mt2][n].

S (uh) Cinderella have to clean [*s][ss][ds][e0][*mop2x][x][mt3][n].

S (and %uhoh lets see uh) I don't understand (uh) something but seem/3s like dress

(uh) Cinderella (uh) made it [*s][cs][con][e1][mcxy][x][y][mt3][mcy*s'][y][*s'][mt3]

[oc][c2xy][x][y][t2][cc][cc][cc][n][n][cc].

S (and) Beautiful [ns][e0][a].

S (uh but uh uh animals) Seem/3s like (s uh) Cinderella (f uh) friend animal/s

[*s][cs][ds][e1][mcy*s'][y][*s'][mt3][oc][n][n][n].

S (uh and uh) What (uh uh) mouse and horse and (uh uh) [*ns][e0][cc][n][cc][n][cc] >

S (and) I think Cinderella want/3s to (uh) party

[s][cs][ds][e2][mcxs'][x][s'][mt2][oc][cxs'][x][s'][t2][oc][ob1x][#x][t2][cc][n].

S (but) I don't think (st uh) stepmother (uh) not allow/ed

[*s][cs][ds][e1][mcx*s'][x][*s'][mt3][oc][*mcx-y][x][-y][t3][cc][n].

S (uh and so) Can/n't go [*s][ss][ds][e0][mob1-x][-x][mt3].

S (but) I think Cinderella want/3s to do it

[s][cs][ds][e2][mcxs'][x][s'][mt2][oc][cxs'][x][s'][t2][oc][ob2xy][#x][y][t2][cc][n][cc].

S I know [es].

S (uh and uh) Beautiful (uh) dress (I) look/3s like (uh) Cinderella (uh) make/*3s [*s][cs][ds][e1][mcx*s'][x][*s'][mt3][oc][*c2xy][x][y][t1][a][n][n].

S (uh and) Ruin/ed [*s][ss][ds][e0][mob2-x-y][-x][-y][mt2].

S (uh) How [es]?

S (uh) Stepmother (uh) ruin/3s [*s][ss][ds][e0][mob2x-y][x][-y][mt2][n].

S (uh) Fight/ing and ruin dress [*s][ss][con][e0][*mop-x][-x][mt2][mob2-xy][-x][y] [mt1][cc][n].

S (and uh so) Can/n't go because (uh) dress ruin/ed [*s][cs][ds][e1][mob1-x][-x][mt3] [ac][ob2-xy][-x][y][t2][cc][n].

S (and) Besides probably (ru) scrub/ing (and uh you know) [*s][ss][ds][e0][*mop2-x] [-x][mt2][ad][ad].

S (uh but) Fairy not (uh) magic wand [*ns][e0][n][ad][a][n].

S (uh) I don't know what/'s a name [*s][cs][ds][e1][mcxs'][x][s'][mt3][oc][copxp][x][p][t2][cc][cc][cc][n].

S (people uh) Woman/*'s magic [*ns][e0][n][n].

S Don't worry [es].

S (uh) Dress %boom [*ns][e0][n].

S (I mean) Beautiful dress [ns][e0][a][n].

S (but) What/'s to do [*s][cs][wh][e1][mcopx-p][x][-p][mt2][rc][ob2-xy][-x][y][t2] [what]?

S (I mean where) How get/ing here [*s][ss][wh][e0][*mop3-xy][-x][y][mt2][how][ad]?

S (well uh) Coach and driver (and uh step not uh well) one two (uh uh) stepmother [*ns][e0][n][cc][n][n][n][n].

S (ba uh) I don't know (know) [es].

S Oh what/'s a name [s][ss][wh][e0][mcopxp][x][p][mt2][what][cc][n]?

S (uh) Footman and (uh wh uh dr uh uh) beautiful (uh) pumpkin [*ns][e0][n][cc][a][n].

S (and) %boom [ns]!

S (uh) Coach/*'s great [*ns][e0][n][a].

S (and) Get out [s][ss][i][e0][mop3xy][#x][y][mt2][ad].

S (and) All (uh) here and fine [ns][e0][cc][ad][cc][a].

S But remember midnight because (uh) coach gone and dress [*s][cs][ds][e1][mc-xy][-x][y][mt1][ac][*ob1x][x][t2][cc][n][cc][n][cc][n].

S (well) No dress ok [ns][e0][a][n].

S (but uh uh) What (uh) footman (uh coach coach) coach and %boom midnight gone [*s][ss][ds][e0][*mob1-x][-x][mt2][cc][n][n][cc][n].

S (so better here) Better (uh) get here [s][ss][i][e0][mop3xy][#x][y][mt2][ad][ad].

S (and uh) Prince and (ok) go [*s][ss][ds][e0][mob1-x][-x][mt1][n][cc].

S (uh) Prince (uh) castle [*ns][e0][n][n].

S (and) I think prince love/*3s (uh) Cinderella [*s][cs][ds][e1][mcxs'][x][s'][mt2][oc][*cxy][x][y][t1][cc][n][n].

S I know because (uh) I love you [*s][cs][ds][e1][mcx-y][x][-y][mt2][ac][cxy][x][y][t2][cc][cc][cc][cc].

S (I mean uh) Beautiful [ns][e0][a].

S (and) Slipper/*'s (uh) glass [*ns][e0][n][a].

S (and uh) Hear what/'s time [*s][cs][yn][e1][mc-x*s'][-x][*s'][mt1][oc][copxp][x][p][t2][cc][n]?

S (midn uh) Cinderella hear/*3s %gong %gong %gong %gong midnight [*s][ss][ds][e0][*mcxy][x][y][mt1][n][n].

S %ha [ns]!

S (well) Better go [s][ss][i][e0][mob1x][#x][mt2][ad].

S Bye [ns].

S (and) %boom [ns]!

S Gone [*s][ss][ds][e0][*mob1-x][-x][mt2].

S (but) Prince glass get (uh uh uh) [*s][ss][ds][e0][mop3-x-y][-x][-y][mt1][n][n]>

S What/'s a name [s][ss][wh][e0][mcopxp][x][p][mt2][what][cc][n]?

S (shoe shoe) Shoe got it [*s][ss][ds][e0][mop3xy][x][y][mt2][n][cc]!

S (uh uh) Cinderella because gone and got it [*ns][e1][ac][*ob1-x][-x][t2][op3-xy][-x][y][t2][n][cc][cc][cc].

S (uh s uh) Yea [ns].

S (ok uh so uh and so) Prince want/*3s to see (uh) slipper (uh) because got it [*s][cs][ds][e2][*mcxs'][x][s'][mt1][oc][cxy][#x][y][t2][ac][op3-xy][-x][y][t2][n][n][cc][cc].

S (uh) make sure people (uh) fit [s][cs][i][e1][mphc2xs'][#x][s'][mt2][oc][op2x][x][t2][n].

S (you know uh uh) Stepmother not fit [*s][ss][ds][e0][*mop2x][x][mt2][n].

S (and uh uh uh) Daughter not fit [*s][ss][ds][e0][*mop2x][x][mt2][n].

S (and but) Cinderella obviously fit/3s [s][ss][ds][e0][mop2x][x][mt2][n][ad].

S (and stepmother uh) Stepmother lock/ed Cinderella [*s][ss][ds][e0][mob2xy][x][y][mt2][n][n].

S (uh) probably the (uh) duke say/3s that/'s (uh) it [s][cs][ds][e1][mcxs'][x][s'][mt2][oc][copxp][x][p][t2][ad][cc][n][cc][cc]?

S (but) Obviously (uh) Cinderella (not uh) can/n't come because key not (uh) stepmother [*s][cs][ds][e1][mob1x][x][mt3][ac][ad][n][cc][n][ad][n].

S Oh I yes (uh) no [*ns][e0][cc] >

S (uh Cinderel uh) Duke say/3s that/'s it (uh) people [*s][cs][ds][e1][mcxs'][x][s'][mt2][oc][copxp][x][p][t2][n][cc][cc][n]?

S (well) No [ns].

S Cinderella [ns][e0][n].

S (so) Lock/ed stepmother [*s][ss][ds][e0][mob2-xy][-x][y][mt2][n].

S Come here [s][ss][i][e0][mphob1x][#x][mt2].

S (and) Sure enough fit/3s [*s][ss][ds][e0][mop2-x][-x][mt2][ad][ad].

S (uh uh) Cinderella and (uh) shoe fit/3s [*s][ss][con][e0][mop2x][x][mt2][n][cc][n].

S Duke (uh) thank god [*ns][e0][n]!

S That/'s (uh) [*s][ss][ds][e0][mcopx-p][x][-p][mt2][cc]>

S Found it Cinderella [*s][ss][ds][e0][mc-xy][-x][y][mt2][cc][n].

S (and uh) Probably (uh) Cinderella and prince marry/ed

[*s][ss][con][e0][mop2x][x][mt2][ad][n][cc][n].

+ tape ends

Subject 3

Narrative Sample 4

3/31/93

S Cinderella/*'s work/ing hard [*s][ss][ds][e0][*mop2x][x][mt2][n][ad].

S (uh) Clean/ing scrub (uh) brush and (uh dish I mean well uh) floor (uh duh uh yea well) [*s][ss][con][e0][*mop2-xy][-x][y][mt2][a][n][cc][n].

S (uh uh) Dish/s (uh) stack/ed hundred/s [*s][ss][ds][e0][mob2-xy][-x][y][mt2][n][n].

S (uh) Probably stepmother want/3s to (ge uh) clean [s][cs][ds][e1][mcxs'][x][s'][mt2][oc][op2x][#x][t2][ad][n].

S (and) %uhoh I don't remember [es].

S (uh let/'s see oh uh uh dress uh uh not uh) Cinderella not good dress [*ns][e0][n][ad][a][n].

S (and) Sew/ing (uh) make up [*s][ss][con][e0][*mop2-x][-x][mt2][mphc2-x-y][mt2].

S (uh) I guess know/3s (uh) thing/s [*s][cs][ds][e1][mcx*s'][x][*s'][mt2][oc][c-xy][-x][y][t2][cc][n].

S I can/n't do it [s][ss][ds][e0][mob2xy][x][y][mt3][cc][cc].

S (but uh) Cinderella can make up dress [*s][ss][ds][e0][mphc2xy][x][y][mt3][n][n].

S (but) Stepmother and (uh) woman one two (uh) broken (uh) dress [*s][ss][con][pa][e0][*mob2xy][x][y][mt2][n][cc][n][n][n][n].

S I don't know why [es].

S (uh) Evil probably (uh) stepmother and (uh) daughter (uh) one two [*ns][e0][a][ad][n][cc][n][n][n].

S (uh so) Dress broken [*s][ss][pa][e0][*mob2-xy][-x][y][mt2][n].

S (and) Can/n't come because (uh) dress (not uh dress) broken [*s][cs][ds][e1][mob1-x][-x][mt3][ac][*ob2-xy][-x][y][t2][cc][n].

S (so) What/'s to do [*s][cs][wh][e1][mcopx-p][x][-p][mt2][rc][ob2-x][y][-x][y][t2][what]?

S (uh) I think (duh duh) [*s][cs][ds][e1][mcx-s'][x][-s'][mt2][oc][cc]>

S No [ns].

S Ok wait [s][ss][i][e0][mob1x][#x][mt2].

S I can't (s) [*ns][e0][cc]>

S Cinderella (uh) I think want/*3s to (uh) ball but (uh) can/n't because dress broken [*s][cs][con][e3][mcxs'][x][s'][mt2][oc][*cx*s'][x][*s'][t1][oc][ac][*ob2-xy][-x][y][t2][n][cc][n][cc][cc][n].

S (so) What/'s (uh) dress [*s][ss][wh][e0][mcopxp][x][p][mt2][what][n]?

S What/'s what [s][ss][ds][e0][mcopxp][x][p][mt2][what][cc]?

S (uh well) Mother (uh uh) magic (uh uh) don't worry [*s][ss][ds][e0][mc-x-y][-x][-y][mt3][n][n].

S I have dress [*s][ss][ds][e0][mob2xy][x][y][mt2][cc][n].

S (and) Sure enough magic %boom [*ns][e0][ad][ad][n].

S XXX.

=impossible

S I can/n't remember it [s][ss][ds][e0][mcxy][x][y][mt3][cc][cc].

S (uh and oh uh) XX (n uh g) I think (uh I) I don't care [*s][cs][ds][e1][mcxs'][x][s'][mt2][oc][cx-p][x][-p][t3][cc][cc].

=impossible

S Wait a minute [s][ss][i][e0][mob1x][#x][j][mt2][cc][n].

S (uh) Dress [*ns][e0][n].

S (uh) Cinderella (uh animal uh) like/*3s animal/s because dog and bird and (uh) horse and mice all friendly [*s][cs][ds][e1][*mcxy][x][y][mt1][ac][n][n][cc][n][cc][n][cc][n][cc][n][cc][a].

S (and uh so uh ma) Magic (uh) ball can/n't do it [*s][ss][ds][e0][mob2xy][x][y][mt3][a][n][cc].

S (b but) I think want to (uh) ball Cinderella

[*s][cs][ds][e2][mcx*s'][x][*s'][mt2][oc][c-x*s'][-x][*s'][t1][oc][cc][n][n].

S Excuse me [s][ss][i][e0][mob2xy][#x][y][mt2][cc].

S (uh but) What/'s to do [*s][cs][wh][e0][mcopx-p][x][-p][mt2][rc][ob2-xy][-x][y][t2]

[what]?

S (well mag uh) Magic (uh) Cinderella (uh) dress [*ns][e0][n][n][n].

S (but how come uh how uh let's see h uh pr) Prince how get (uh) here

[*s][ss][wh][e0][*op3-xy][-x][y][mt1][n][how][ad]?

S (uh well) Coach and (uh) beautiful (uh) pumpkin actually [*ns][e0][n][cc][a][n][ad].

S (but uh uh) Horse and (stepma uh stepmother no) footman (footman) and (uh)

[*ns][e0][n][cc][n][cc]>

S What's a name [*s][ss][wh][e0][mcopxp][x][p][mt2][what][cc][n]?

S (uh p) %ch %ch %ch (uh) man [*ns][e0][n]>

S I don't know (ha) what/'s a name

[*s][cs][ds][e1][mcxs'][x][s'][mt3][oc][copxp][x][p][t2][cc][cc][cc][n].

S (but uh so come on) Come on (uh) Cinderella [s][ss][i][e0][mphob1x][x][mt2][n].

S Ok [ns].

S But remember midnight gone (uh) coach [*s][cs][ds][e1][mc-xy][-x][y][mt1][ac]

[*ob1x][x][t2][cc][n][n].

S (so) Be here [s][ss][i][e0][mcopxp][#x][p][mt2][ad]!

S (uh) Ok probably[ns][e0][ad].

S (and uh) Let's see (uh oh) coach sure enough %boom gone

[*s][cs][ds][e2][mob2xy][#x][y][mt2][rc][cxy][#x][y][t2][*ob1x][x][t2][n][ad][ad].

S (and uh) Midnight (uh) hear %gong %gong %gong %gong [*s][ss][ds][e0][mc-xy]

[-x][y][mt1][n].

S %hu %uhoh I/'m sorry prince [s][ss][ds][e0][mcopxp][x][p][mt2][cc][a][n].

S Bye [ns].

S (but uh) Slipper glass [*ns][e0][n][a].

S (and uh) Prince got it [*s][ss][ds][e0][mop3xy][x][y][mt2][n][cc].

S (uh uh) Foot what (shoes) shoe/s [*ns][e0][n][cc][n].

S (and) Got it [*s][ss][ds][e0][mop3-xy][-x][y][mt2][cc].

S (and uh so) Duke (s uh) princess (well) I want to see hundred/s people (sa) see fit/3s [*s][cs][ds][e3][mcxs'][x][s'][mt2][oc][cxy][#x][y][t2][rc][*cx*s'][x][*s'][t1][oc] [op2-x][-x][t2][n][n][cc][n][n].

S (sa and uh) Ok [ns].

S (uh) Get out (uh) princess (uh yea princess)[s][ss][i][e0][mop3xy][x][y][mt2][ad][n].

S (so uh) Duke see/3s people [*s][ss][ds][e0][mcxy][x][y][mt2][n][n].

S (and) Hundred/s (uh) because (you know) [*ns][e1][ac][n][cc] >

S (s and so t uh) Duke here (uh) Cinderella (uh) home [*ns][e0][n][ad][n][n].

S (and uh) Stepmother that/'s it [s][ss][yn][e0][mcopxp][x][p][mt2][n][cc][cc]?

S (well) Cinderella lock/ed (uh) stepmother [*s][ss][ds][e0][mob2xy][x][y][mt2][n][n].

S I don't know why [es].

S (uh) Key [*ns][e0][n].

S (but uh oh no I uh) Probably (s uh) stepmother (s uh) say/3s (well) no one more [*s][cs][ds][e1][mcx*s'][x][*s'][mt2][oc][ad][n][a][n][a].

S (and) Cinderella/*'s there [*ns][e0][n][ad].

S (and uh) Sure enough obviously (uh) shoe fit/3s [*s][ss][ds][e0][mop2x][x][mt2][ad] [ad][ad][n].

S (and) Thank god [ns].

S (because) Duke think/3s (I mean) that/'s done job [*s][cs][ds][e1][mcxs'][x][*s'][mt2][oc][ob2xy][#x][y][mt3][n][cc][n].

S (and uh) Duke (uh) sorry (uh) prince and (uh) Cinderella happy (uh happy) [*ns][e0][n][a][n][cc][n][a] >

S What/'s a name [s][ss][wh][e0][mcopxp][x][p][mt2][what][cc][n]?

S (sa) Time [ns][e0][n].

S That/'s it [s][ss][ds][e0][mcopxp][x][p][mt2][cc][cc].

+ tape ends

Subject 3

Narrative Sample 5

4/30/93

S (well) Look/3s like Cinderella/*'s hard working because XX floor not clean/*ed [*s][cs][ds][e2][mphc-y*s'][-y][*s'][mt2][oc][ac][op2-xy][-x][y][t2][n][a][a][cc][n].

S (so) Cinderella/*'s got to scrub [*s][ss][ds][e0][*mop2x][x][mt3].

S (and) Sure enough (uh) scrub/ing %ch %ch %ch %ch %ch [*s][ss][ds][e0] [*mop2-x][-x][mt2][ad][ad].

S (and uh) Pan (uh) scrub/ing and sweep/ing [*s][ss][con][e0][*mop2-x][-x][mt2] [*mop2-x][-x][mt2][n][cc].

S (but uh) Hand [*ns][e0][n]>

S What/'s a name [*s][ss][wh][e0][mcopxp][x][p][mt2][what][cc][n]?

S I don't know [es].

S (well uh) Never mind [es].

S (uh) Oh my God [ns]!

S (uh and uh) Scrub/ing (uh) 00:06 [*s][ss][ds][e0][*mop2-x][-x][mt2]>

S (ok uh you uh) Stepmother you remember clean/ing please [*s][cs][i][e1][mcx*s'][x][*s'][mt2][oc][*op2x][#x][t2][n][cc].

S (uh and) Stepmother one two [*ns][e0][n][n][n].

S (and uh but) I think Cinderella want/3s to (uh) go ball [*s][cs][ds][e2][mcxs'][x][s'][mt2][oc][cxs'][x][s'][t2][oc][ob1x][#x][t2][cc][n][n].

S (but) Oh I remember [es].

S (uh Cins) Cinderella (seems like uh) dog and horse and bird and mouse seem/3s like friend/s [*s][ss][ds][e0][*mphcxy][x][y][mt2][n][n][cc][n][cc][n][cc][n][n].

S (uh because uh) I think (ku) can/n't understand (uh) bird/s (uh) say/ing [*s][cs][ds] [e2][mcx*s'][x][*s'][mt2][oc][c-x*s'][-x][*s'][t3][oc][*cx-y][x][-y][t2][cc][n].

S (and uh) Really great [*ns][e0][ad][a].

S I wish (uh my) me but I obviously can/n't

[*s][ss][con][e0][mcx*y][x][*y][mt2][cc][cc][cc][cc][ad].

S (but uh well anyway ok uh) Cinderella I think want/3s to go (uh) ball

[*s][cs][ds][e2][mcxs'][x][s'][mt2][oc][cxs'][x][s'][t2][oc][ob1x][#x][t2][n][cc][n].

S (and but uh uh dress uh) I think Cinderella stepmother (uh) dress (uh stepmother uh)

[*s][cs][ds][e1][mcx*s'][x][*s'][mt2][oc][cc][n][n][n].

S Yea I know [es].

S (uh make it) Make it Cinderella [*s][ss][ds][e0][mob2-xy][-x][y][mt1][cc][n].

S (uh so) Ok [ns].

S (so) Probably dress/*'s beautiful [*ns][e0][ad][n][a].

S (but) Cinderella plan/3s (I don't know) a fit (uh) dress

[s][ss][ds][e0][mob2xy][x][y][mt2][n][cc][a][n].

S My (uh) Cinderella [ns][e0][cc][n].

S Beautiful [ns][e0][a]!

S (but but) Stepmother (uh) dress %uh [*ns][e0][n][n].

S (ku uh) %uh broken (uh) Cinderella [*s][ss][ds][e0][*mob2-x-y][-x][-y][mt2][n].

S (and) Cry/ing because obviously can/n't go because (uh) dress/*'s ruined [*s][cs][ds]

[e2][*mop2-x][-x][mt2][ac][ob1-x][-x][t3][ac][ob2xy][#x][y][t2][cc][ad][cc][n].

S (but uh) What/'s a name [s][ss][wh][e0][mcopxp][x][p][mt2][what][cc][n]?

S Magic [ns][e0][n].

S I don't know [es].

S (bu uh) Cinderella (uh) magic (uh fre suf oh) [*ns][e0][n][n]>

S Wait a minute [s][ss][i][e0][mob1x][#x][j][mt2][cc][n].

S (uh) Good (uh) [ns][e0][a]>

S (well) A magic wand [ns][e0][cc][a][n].

S (and) Don't worry [es].

S I can do it [s][ss][ds][e0][mob2xy][x][y][mt2][cc][cc].

S Dress/*'s perfect [*ns][e0][n][a].

S Beautiful [ns][e0][a].

S I think blue and white [es].

S I don't [*ns][e0][cc] >

S (and uh hair uh uh) Beautiful hair/*'s (uh) stand/ing up or (uh) [*s][ss][ds][e0][*mphob1x][x][mt3][a][n][cc] >

S What/'s a name [s][ss][wh][e0][mcopxp][x][p][mt2][what][cc][n]?

S (and) Wow beautiful [ns][e0][a]!

S (and uh) Coach (uh ma) pumpkin [*ns][e0][n][n] >

S (and uh) Footmen and (uh) driver and horse (one two three) four [*ns][e0][n][cc][n][cc][n][a].

S (and uh) Magic %boom [*ns][e0][n]!

S (and) Beautiful coach [ns][e0][a][n].

S (but) Remember better midnight because (uh) magic [*s][ss][ds][e1][mc-xy][-x][y] [mt1][ac][a][n][cc][n].

S That/'s it [s][ss][ds][e0][mcopxp][x][p][mt2][cc][cc]!

S (uh) Coach/*'s gone [*s][ss][ds][e0][*mob1x][x][mt2][n].

S (so) Probably midnight hear %gong %gong %gong [*s][ss][ds][e0][mc-xy][-x][y] [mt1][ad][n].

S (uh) Cinderella %ha oh my god [*ns][e0][n]!

S I forgot [es].

S (and uh oh) Duke (uh uh) I think (uh) Cinderella dance/ed [*s][cs][ds][e1][mcx*s'][x][*s'][mt2][oc][op2x][x][t2][n][cc][n].

S I know [es].

S (and uh) I/*'ve got go (uh uh) prince said [*s][cs][ds][e1][oc][*ob1x][x][t2][mcx*s'][x][*s'][mt2][cc][n].

S I don't know [es].

S (ok uh) Why [es]?

S I don't understand [es].

S Midnight [ns][e0][n].

S I can/n't go [s][ss][ds][e0][mob1x][x][mt3][cc].

S Bye [ns].

S (so uh uh) Cinderella love/*3s (uh) prince [*s][ss][ds][e0][*mcxy][x][y][mt1][n][n].

S Goodbye [ns].

S (so) %boom [ns]!

S (and but uh) What do you call it [s][ss][wh][e0][mob2xy][x][y][mt2][what][cc][cc]?

S (uh) Let/'s see shoe (shoe) and (silver no uh glass) glass

[s][cs][con][e1][mob2xy][#x][y][mt2][rc][cxy][#x][y][t2][n][cc][n].

S (and) Fallen %boom %boom %boom [*s][ss][ds][e0][*mob1-x][-x][mt2].

S (uh foot uh yea uh) One foot got (uh) prince

[*s][ss][ds][e0][mop3xy][x][y][mt2][a][n][n].

S I got it [s][ss][ds][e0][mop3xy][x][y][mt2][cc][cc].

S (and uh) Duke [ns][e0][n]>

S (so gone g uh) Cinderella/*'s gone [*s][ss][ds][e0][*mob1x][x][mt2][n].

S (but uh uh foot no shoe shoe shoe) Shoe (uh) glass [*ns][e0][n][n].

S (so) Duke (uh) important job [*ns][e0][n][a][n].

S (I uh) Prince want/3s to (uh) shoe fit (fit)

[*s][cs][ds][e1][mcx*s'][x][*s'][mt2][oc][*op2xy][#x][y][t2][n][n].

S Go get (go uh) people [s][ss][con][i][e0][mob1x][#x][mt2][mop3xy][#x][y][mt2][n].

S Go [s][ss][i][e0][mob1x][#x][mt2].

S I want to see foot [*s][cs][ds][e1][mcxs'][x][s'][mt2][oc][cxy][#x][y][t2][cc][n].

S (uh and uh) Cinderella obviously [ns][e0][n][ad].

S (so ok bye) Goodbye duke [ns][e0][n].

S Goodbye [ns].

S (and uh so uh so) Duke and (uh) stepmother (uh) lock/ed (uh) Cinderella [*s][ss][con][e0][mob2xy][x][y][mt2][n][cc][n][n].

S I don't know why [es].

S (but uh) Key [*ns][e0][n].

S (so uh) Duke ask/ed that/'s (uh) it (uh) people [*s][cs][ds][e1][mcx*s'][x][*s'][mt2][oc][copxp][x][p][t2][n][cc][cc][n]?

S (well) No (uh) Cinderella [ns][e0][n].

S (well) I want to see him (uh) duke said [*s][cs][ds][e2][oc][cxs'][x][s'][t2][oc][cxy][#x][y][t2][mcxs'][x][s'][mt2][cc][cc][n].

S Ok but not possible shoe fit/3s [*s][ss][ds][e0][mop2x][x][mt2][cc][ad][a][n].

S (but) I want to see [es].

S Ok [ns].

S (and uh) Stepmother (uh f uh uh) glass (uh) shoe not fit [*s][ss][ds][e0][*mop2x][x][mt2][n][n][n].

S (but) I want to show (uh) supposedly (uh) stepmother want/*3s to (uh) give (uh) shoe fit [*s][cs][ds][e4][mcxs'][x][s'][mt2][oc][cx*s'][#x][*s'][t2][oc][*cxs'][x][s'][t1][oc][op3xy][#x][y][t2][oc][op2x][x][t2][cc][ad][n][n]?

S No [ns].

S (so) Too bad [ns][e0][ad][a].

S (and then uh) That/'s it [s][ss][yn][e0][mcopxp][x][p][mt2][cc][cc]?

S (uh well) No [ns].

S I remember (uh) Cinderella lock/ed [*s][cs][ds][e1][mcx*s'][x][*s'][mt2][oc][ob2x-y][x][-y][t2][cc][n].

S Oh yea ok [ns].

S (uh) Cinderella go on [s][ss][i][e0][mphob1x][x][mt2][n].

S Prove it [s][ss][i][e0][mcxy][#x][y][mt2][cc].

S Sure enough obviously fit/3s (uh) shoe [*s][ss][ds][e0][mop2-xy][-x][y][mt2][ad][ad]

[ad][n].

S (and uh) Thank god because duke/*'s done obviously

[*ns][e1][ac][*mob2xy][#x][y][mt2][cc][n][ad].

S I think thank god I found Cinderella

[s][cs][ds][e1][mcxs'][x][s'][mt2][oc][cxy][x][y][t2][cc][cc][n].

S (and uh and uh uh) Happy duke and (uh) [*ns][e0][a][n][cc]>

S Oh I remember [es].

S Prince (uh uh whatchamacallit) soldier (uh) [*ns][e0][n][n]>

S (oh well and) Happy duke and Cinderella probably marry/ed

[*s][ss][con][e0][mop2x][x][mt2][a][n][cc][n][ad].

S That/'s it [s][ss][ds][e0][mcopxp][x][p][mt2][cc][cc].

+ tape ends

Subject 3

Narrative Sample 6

5/5/93

S (uh) Cinderella/*'s hard working [*ns][e0][n][a][a].

S (and job uh I mean) Not good job [*ns][e0][ad][a][n].

S (uh) Ceiling scrub/ing (scrub scrub scrub) [*s][ss][ds][e0][*mop2-xy][-x][y][mt2][n].

S (and) Dish/s and that/'s (you know) terrible

[*s][ss][ds][e0][mcopxp][x][p][mt2][n][cc][cc][a].

S (and uh) Remember better scrub [*s][cs][i][e1][mcx*s'][#x][*s'][mt2][oc][op2-x]

[-x][t1][ad].

S (and uh) Stepmother (mhm oh no) [ns][e0][n]>

S (uh uh a uh) Cinderella seem/3s like mice and bird and horse and dog love/*3s (uh uh) animal/s and sing/*3s [*s][cs][ds][e1][mphcx*s'][x][*s'][mt3][oc][*cxy][x][y][t1]

[*op2-x][-x][t1][n][n][cc][n][cc][n][cc][n][n][cc].

S Look/3s like (you know) I think Cinderella know/*3s talk/ing [*s][cs][ds][e3]

[mphc-xs'][-x][s'][mt3][oc][cx*s'][x][*s'][t2][oc][*cx*s'][x][*s'][t1][*op2-x][-x][t2]

[cc][n].

S (I mean) I understand [es].

S (uh and) I think Cinderella want/3s to (uh I know uh) ball but prince/s but can/n't

[*s][cs][con][e2][mcxs'][x][s'][mt2][oc][cx*s'][x][*s'][t2][oc][cc][n][n][cc][n][cc].

S Why [es]?

S Because dress/*'s not zero [*ns][e1][cc][n][ad][n].

S (so) What (uh y) dress [es]?

S (and) I don't know why [es].

S Seem/3s like (uh) stepmother and (uh stepmother no oh gees stepmother and mom not right but one one) two people stepmother [*s][ss][ds][e0][mphc-xy][-x][y][mt3][n]

[cc][a][n][n].

S (uh) Dress/*'s ruin/ed [*s][ss][ds][e0][*mob2-xy][-x][y][mt2][n].

S (uh) Struggle/3s [*s][ss][ds][e0][mob1-x][-x][mt2].

S (and uh) I don't know why [es].

S (but uh) %ha %ha %ha [ns].

S (uh) Stepmother/*'s funny [*ns][e0][n][a].

S I don't know why [es].

S (uh but uh so) Can/n't (uh) dress [*ns][e0][n].

S That/'s it [s][ss][ds][e0][mcopxp][x][p][mt2][cc][cc].

S (and so uh) Broken [*s][ss][ds][e0][*mob2-x-y][-x][-y][mt2].

S (uh but) Magic %chsh [ns][e0][n].

S What/'s a name [s][ss][wh][e0][mcopxp][x][p][mt2][what][cc][n]?

S (uh) Fat [ns][e0][a].

S (uts uh) Magic wand (so) [ns][e0][a][n].

S That/'s it [s][ss][ds][e0][mcopxp][x][p][mt2][cc][cc].

S (so don't) Said don't worry [*s][cs][ds][e1][mc-xs'][-x][s'][mt2][oc][cxp][#x][#p][t3]

=said pronounced sad

S Here [ns][e0][ad].

S Dress %boom magic [*ns][e0][n][n].

S (and) Pretty dress [ns][e0][a][n].

S (so) Can do it [*s][ss][ds][e0][mob2-xy][-x][y][mt2][cc].

S (uh but uh but) How walk/ing [*s][ss][wh][e0][*mob1-x][-x][mt2][how]?

S (uh uh) Coach %boom [*ns][e0][n].

S Magic [ns][e0][n]?

S Yes [ns].

S (and pumpkin uh uh uh) What/*'s the coach pumpkin [*ns][e0][what][cc][n][n]?

S (and uh) How (uh) horse (one two three) four and (uh) coachmen and driver

[*ns][e0][how][n][a][cc][n][cc][n]?

S (and) Get in (uh uh) Cinderella [s][ss][i][e0][mop3xy][x][y][mt2][cc][n].

S Oh thank you [ns]!

S But remember important midnight [*s][ss][i][e0][mcxy][#x][y][mt2][cc][a][n].

S That/'s it [s][ss][ds][e0][mcopxp][x][p][mt2][cc][cc].

S Be here [s][ss][i][e0][mcopxp][#x][p][mt2][ad].

S Ok I remember [es].

S (and uh uh) Prince I think (uh uh uh) like/*3s Cinderella

[*s][cs][ds][e1][mcx*s'][x][*s'][mt2][*cxy][x][y][t1][n][cc][n].

S (uh and) Midnight hear %ding %ding %ding [*s][ss][ds][e0][mc-xy][-x][y][mt1][n].

S Oh I/'m sorry (c uh) Cinderella [s][ss][ds][e0][mcopxp][x][p][mt2][cc][a][n].

S Goodbye [ns].

S Wait a minute [s][ss][i][e0][mob1x][#x][j][mt2][cc][n]!

S Not want to go [*s][cs][ds][e1][mc-xs'][-x][s'][mt2][oc][ob1-x][-x][t2].

S But I got to [es].

S %gong [ns].

S (so) Gone [*s][ss][ds][e0][*mob1-x][-x][mt2].

S (but uh whatchamacalit shoes uh s uh) Glass shoe/s [ns][e0][a][n].

S (and uh fall down uh) Cinder (uh) not fall down

[*s][ss][ds][e0][*mphob1x][x][mt3][n].

S (but uh) Got it (uh) prince [*s][ss][ds][e0][mop3xy][x][y][mt2][cc][n].

S (and) I want to say/3s (uh) duke you job fit/*3s [*s][cs][ds][e2][mcs*s'][x][*s'][mt2]

[oc][*cx*s'][x][*s'][t3][oc][*op2x][x][t1][cc][n][cc][n].

S Please people see hundred [*s][ss][ds][e0][mcxy][x][y][mt2][n][n].

S See fit/*3s (uh) slipper [*s][ss][i][e1][mc-x*s'][-x][*s'][mt1][oc][*op2-x][y][-x][y]

[t1][n].

S Ok excuse me [s][ss][i][e0][mob2xy][#x][y][mt2][cc].

S (uh) Let's see (oh dear oh) duke

[*s][ss][ds][e1][mob2xy][#x][y][mt2][rc][cxy][#x][y][t2][n] >

S (oh oh uh) House (uh) stepmother and (uh step uh uh mother stepmother uh) two one [*ns][e0][n][n][cc][n][n].

S (that/'s uh) Duke say/3s that/'s it [*s][cs][ds][e1][mcxs'][x][s'][mt2][oc][copxp][x][p][t2][n][cc][cc]?

S (uh) Fit/ing (uh) obviously (uh uh) stepmother no but try/ed it [*s][ss][con][e0][*mop2-xy][-x][y][mt2][mc-xy][-x][y][mt2][ad][n][ad][cc][cc].

S But no [ns][e0][cc][ad].

S (uh uh and uh) Duke say/3s (uh) that/'s it [*s][cs][ds][e1][mcxs'][x][s'][mt2][oc][copxp][x][p][t2][n][cc][cc]?

S (well) No [ns].

S Cinderella [ns][e0][n].

S (well) Come [s][ss][i][e0][mob1x][#x][mt2].

S I want to see [es].

S (and) I don't know why stepmother (uh) lock/ed (uh) Cinderella [*s][cs][ds][e1][mcxs'][x][s'][mt3][oc][ob2xy][x][y][t2][cc][cc][n][n].

S (because) I don't (I I I don't uh) get it (uh) why because (uh) stepmother (you know) not (uh) ball [*s][cs][ds][e1][mop3xy][x][y][mt3][ac][cc][cc][cc][cc][n][ad][n].

S (because uh) Dress not know [*s][ss][ds][e0][*mc-xy][-x][y][mt2][n].

S (uh) Never mind [es].

S (but) Lock/ed yes [*s][ss][ds][e0][mob2x-y][x][-y][mt2][cc].

S (but well no uh c) Duke say/3s (uh) stepmother one (uh) people [*s][cs][ds][e1][mcx*s'][x][*s'][mt2][oc][n][n][a][n].

S Who [es]?

S Cinderella [ns][e0][n].

S (well) I want to see you [s][cs][ds][e1][mcxs'][x][s'][mt2][oc][cxy][#x][y][t2][cc][cc]

S Ok [ns].

S (and) Sure enough Cinderella fit/3s of course

[s][ss][ds][e0][mop2x][x][mt2][ad][ad][cc][n].

S (uh and) Good thing too because (uh) duke/*z job/*'s done

[*s][ss][ds][e0][*mob2xy][#x][y][mt2][a][n][ad][cc][n][n].

S (uh and uh) Duke and Cinderella (uh) probably (well) I know (happy uh) let's see happy ending [*s][cs][ds][e2][mcx*s'][x][*s'][mt2][oc][ob2xy][#x][y][t2][rc][cxy][#x][y][t2][n][cc][n][ad][cc][a][n].

S Probably (uh duke no yea) prince and Cinderella marry/ed

[*s][ss][ds][e0][mop2x][x][mt2][ad][n][cc][n].

+ tape ends

Subject 4

Conversation Sample 1

S=Subject, F=Family Member

6/09/93

S (what) What did you say about the girl who (hu figure who) said six year/s X (six) young girl [*s][cs][wh][e1][mcsy][x][y][j][mt3][rc][cx*s'][x][*s'][t2][what][cc][cc][cc][n][cc][a][n][a][n]?

F I don't know.

S She did/n't get it [s][ss][ds][e0][mop3xy][x][y][mt4][cc][cc].

S Her X feel/*3s bad what happen/ed that time [*s][cs][ds][e1][*mc2xp][*x][p][*s'][mt1][oc][ob1x][x][j][t2][cc][a][cc][cc][n].

S What do you say about that [s][ss][wh][e0][mcxy][x][y][mt2][what][cc][cc][cc]?

F <At>^

S <She> [ns][e0][cc]^

F At this school <uh> the understand at this school you don't have to be pretty you don't have to be uh have a great shape or anything.

S <Yea> (yea) [ns].

F Everybody's a cheer leader.

F You don't have to be perfect.

S Yes [ns].

F And that's the theory that this is about.

F Everybody's on the on the football team everybody's on the <basketball team>.

S <Oh I see it/'s like that> [s][cs][ds][e1][mcxs'][x][s'][mt1][oc][copxp][x][p][t1][cc][cc][cc][cc].

F What <what> do you think?

S <What> [ns][e0][cc]^

S Can do so many in (uh) [*s][ss][ds][e0][mob2-xy][-x][y][mt2][ad][n][cc]>

S Like the girl sixteen year/s (no money uh) [*s][ss][ds][e0][mc-xy][-x][y][mt1][cc][n][a][n]>

S She/*'s from school [*ns][e0][cc][cc][n].

F Yea.

S When (what) X [ns][e0][cc]>

= sounds like six or its

F See the idea to this school is that everybody participates.

S <When> [ns][e0][cc]^

F <You> don't have to be perfect or you don't have to be extra good to be on the team.

F Everybody's on the <team>.

S <No> [ns].

S I tell you too the other one (uh the uh m uh) like/*3s this [*s][cs][ds][e1][mc2xs'z][x][s'][z][mt1][oc][*cxy][x][y][t1][cc][cc][ad][cc][a][n][cc].

= probably trying to say music

F In the band.

S And other student/s other thing/s [*ns][e0][cc][a][n][a][n].

F Right.

F Everybody's right.

F If you want to be in the band you don't have to be a perfect musician to be in the band.

F Everybody is in the band that wants <to be in it>.

S <Good> (good) [ns][e0][a].

S Then there/'s no difference [s][ss][ds][e0][mcopxp][x][p][mt1][ad][cc][a][n].

S (soo) School/s do that [s][ss][ds][e0][mob2xy][x][y][mt1][n][cc].

F Yea school?

F Other schools do it?

F I don't know but that's the purpose of this.

F This here has been everybody in the school is happy.

F They don't feel rejected because they <couldn't make the team>.

S <Why the big/er girl now> [*ns][e0][why][cc][a][n][ad]?

S You heard her [s][ss][ds][e0][mcxy][x][y][mt2][cc][cc].

F Yea.

S The big/er <girl> [ns][e0][cc][a][n].

F <Right>.

S What she said (uh) her XX [*s][ss][wh][e0][*mcxy][x][y][mt2][what][cc][cc]?

F <What> did she say?

S <Did> [*s][ss][ds][e0][mob2-x-y][-x][-y][mt2]^

S Did the (the w) could [*s][ss][ds][e0][mob2-x-y][-x][-y][mt2][cc]>

F She could she could be on the team or she could be the <cheer leader>?

S <No the> one girl/*'s here [*ns][e0][cc][a][n][ad].

F What?

F The announcer?

S No [ns].

S The girl and said he (sh) had (uh uh)

[*s][cs][ds][e1][mc-x*s'][-x][*s'][mt2][oc][ob2x-y][x][-y][t2][cc][n][cc][cc]>

F She's>

S Young girl [ns][e0][a][n].

F <Yea>.

S <High/er> [ns][e0][a].

S She/'s big/er now [s][ss][ds][e0][mcopxp][x][p][mt1][cc][a][ad].

F Yea the older person?

S Yes [ns].

S What she said about her [ns][e1][sc][cxy][x][y][j][t2][cc][cc][cc][cc].

S How fast she said her very well no good

[*s][ss][ds][e0][mcx*s'][x][*s'][mt2][ad][a][cc][cc][ad][ad][ad][a].

S All the year/s did/n't get it do/ing thing/s like that [*s][cs][ds][e1][mob2-xy][-x][y][mt4][ac][ob2xy][#x][y][j][t2][cc][cc][n][cc][n][cc][cc].

F <Mhm>.

S <(I)> I mean XX [*s][ss][ds][e0][mcx-s'][x][-s'][mt1][cc].

F Well the purpose of this school is to have everybody <participate> if they want to.

S <I know> [es].

F If they want to be on the cheer in the cheering section anybody could be on the cheering section.

F If they want to be in the band if you feel like you want to play an instrument you could be in the band.

F You don't have to be a perfect individual.

S I heard say [*s][cs][ds][e1][mcx*s'][x][*s'][mt2][oc][c-x-y][-x][-y][t1][cc].

S I/'m ask/ing (uh) girl old/er now [*s][ss][ds][e0][mcx*y][x][*y][mt3][cc][n][a][ad].

F The older <girl>?

S <She> said when she was in school (uh she some bi) what she did (did) and always think was no was [*s][cs][con][e3][mcxs'][x][s'][mt2][ac][copxp][x][p][t2][sc][ob2xy][x][y][t2][*mcx*s'][#x][*s'][mt1][oc][copx-p][x][-p][t2][cc][cc][cc][cc][n][cc][cc][cc][ad][ad].

F <Mhm> .

F Yea she always thought she wasn't good enough.

S <Something> [ns][e0][n]^

F <Is that> what you're trying <to say>?

S <No I> did/n't list her the girl by herself <talk/ing>

[*s][cs][ds][e1][mob2x*y][x][*y][mt4][rc][*ob1x][x][t2][cc][cc][cc][n][cc][cc].

F <Mhm>.

S Said when she/'s sixteen gone school six year/s (uh he was seers) [*s][cs][ds][e1] [mc-xs'][-x][s'][mt2][ac][copxp][x][p][t2][*ob1x][#x][j][j][t2][cc][cc][n][n][a][n] >

F Yea.

F Sixteen?

S No [ns].

S (one uh) When big X thing/s X [*ns][e0][cc][a][n].

F Yea <cheerleaders>.

S (but) I did/n't understand her [s][ss][ds][e0][mcxy][x][y][mt4][cc][cc].

S Said she (al) always X she talk/*3s of (di) different <X> [*s][cs][ds][e1][mc-x*s'][-x][*s'][mt2][oc][*ob1x][x][t1][cc][ad][cc][cc][a].

F <Yea>.

S I can/n't [es].

F All the years she thought that she wasn't good enough <she wasn't> pretty enough?

S <No she> [*ns][e0][cc]^

F <Is that what you're trying to say>?

S <No> she/'d say did (l) listen (you) you X hear it [*s][cs][ds][e2][mcx*s'][x][*s'][mt2][oc][ob1-x][-x][t3][oc][cxy][x][y][t1][cc][cc][cc].

F No I'm trying to find out what you what you uh are trying <to say>.

S <Because X> that you (uh uh) have (uh) XX [*s][ss][ds][e0][mob2x-y][x][-y][mt1] [cc][cc].

F She was unhappy?

S She did something (ha happen uh) happy [s][ss][ds][e0][mob2xy][x][y][mt2][cc][n][a].

F <Yea I I>^

S <(I I can)> I get it [s][ss][ds][e0][mop3xy][x][y][mt1][cc][cc].

S Maybe (si) say when I can XX I sometimes don't hear well [*s][cs][ds][e2][mc-xs'][-x][s'][mt1][ac][oc][cxp][x][p][t3][ad][cc][cc][cc][ad][a].

F <Mhm>.

S <Take> time to listen (and) but I <do that> [*s][ss][con][e1][ac][mob2-xy][-x][y][mt2][ac][ob1x][#x][t2][mob2xy][x][y][mt2][n][cc][cc][cc].

F <Well because> it's a little hard to listen to <these things>.

S <(but)> Let me talk about high/er girl [*s][cs][i][e1][mob2xy][#x][y][mt1][ac][ob1x][x][t1][cc][cc][a][n].

F Yea the older girl.

S Yes [ns].

S (but) She said she know/3s all the year/s (uh) unhappy but something XX [*s][cs][ds][e1][mcxs'][x][s'][mt2][oc][cxy][x][y][t2][cc][cc][cc][cc][n][a][cc][n].

F That she was unhappy?

S What some happen/ed that time was in school she (uh the howi howi how is the) [*s][cs][wh][e1][mc*xy][*x][y][t2][rc][cop*xp][*x][p][mt2][cc][cc][cc][n][cc][n][cc]^

F Yea?

F That she was rejected?

S I did/n't say that [s][ss][ds][e0][mcxy][x][y][mt4][cc][cc].

S I don't know what I said [s][cs][ds][e1][mcxs'][x][s'][mt3][oc][cxy][x][y][t2][cc][cc][cc].

S I (I) you won't let me (li) look and XX [*s][cs][con][e1][mc2*xy*s'][*x][y][*s'][mt4][oc][ob1x][x][t2][cc][cc][cc][cc].

S <XXX>.

F <Maybe> I missed that part.

F I don't <know what>^

S <The> (girl) big/er girl [ns][e0][cc][a][n].

F I understand what you're trying to <say>.

S <What> (school lu uh) school young/er [*ns][e0][cc][n][a].

F Yea.

S Not (ai) one two three five <go out> (uh) school (high high) <high>

[*s][ss][ds][e0][mphob1-x][-x][mt2][ad][n][n][n][n][n][a]^

F <Mhm>.

F <High> to to high school.

S Young/er XX [ns][e0][a].

+ tape ends

Subject 4

Conversation Sample 2

S=Subject, F=Family Member

6/11/93

S (m) What/'d they say about that [s][ss][wh][e0][mcxy][x][y][mt2][what][cc][cc][cc]?

F <XX> Did you understand what they were trying to say?

F That the health care workers the nurses and the doctors in some hospitals they don't take the proper precautions.

F (Now the) in this hospital in New York the mont the montetriord.

= sounds like montetriord or something like that probably name of hospital

S Yea [ns].

F There they teach the health care workers the people in the laboratories annd in the operating room they teach them the precautions against AIDS.

F And what did you think?

S (uh) They want/ed five (dep) [s][ss][ds][e0][mcxy][x][y][mt2][cc][n].

S (ok but) Here people are people [s][ss][ds][e0][mcopxp][x][p][mt1][ad][n][n].

F Mhm.

S (and want to) Here want to try it (and) but other hospital/*s will do it [*s][cs][con][e1][mc-xs'][-x][s'][mt1][oc][cxy][#x][y][t2][mob2xy][x][y][mt2][ad][cc][cc][a][n][cc].

= hospital pronounced hup

S (de de)^

F Dentists?

S Yes [ns].

S (they are) They got AIDS from the dentist [s][ss][ds][e0][mob2xy][x][y][mt2][cc][n][cc][cc][n].

F From the dentist?

S (and) It/'s different than you go to a hospital [s][cs][ds][e1][mcopxp][x][p][ac][mt1][ob1x][x][t1][cc][a][cc][cc][cc][n].

S Those people want to (uh they want to) show them how do it [*s][cs][ds][e1][mcx*s'][x][*s'][mt1][oc][cx*s'z][x][*s'][z][t2][oc][*ob2xy][#x][y][t1][cc][n][cc][ad][cc].

S (but) A dentist somehow is put/*ing glove/*s <,> on now [*s][ss][ds][e0][*mphob2xy][x][y][mt2][cc][n][ad][n][ad].

= glove pronounced koog

F <Gloves>?

S Yea [ns].

S (and) Light/s to [*ns][e0][n][cc].

F Masks.

S (and) They/*'s try/ing too [*s][ss][ds][e0][*mcxy][x][#y][mt1][cc][ad].

S (I don't I) I don't how they thing [*s][cs][ds][e1][mcx*s'][x][*s'][mt3][oc][cc][ad][cc][n]>

S Like the (the) girl there [ns][e0][cc][cc][n][ad].

S Said she got from the dentist [*s][cs][ds][e1][mc-x*s'][-x][*s'][mt2][oc][ob2x-y][x][-y][t2][cc][cc][cc][n].

F Mhm.

S And XX to XX to money <,> to get her [*s][ss][ds][e0][*mob2-xy][-x][y][mt2][cc][cc][cc][n][cc].

F Yea.

S I don't know <how> [s][ss][ds][e0][mcxy][x][y][mt3][cc][ad].

F <Well> the whole purpose of this program I think is that the hospitals and the dentists anybody that has to do with health care they should assume the responsibility and treat every patient the same way.

F Take the precaution that if it's a patient that they treat them as if they have AIDS.

F In other words they should put on gloves they should put on masks and everything so they have the proper precautions against AIDS.

S <They> (could) <should> [*ns][e0][cc].

F <Maybe>^

F <Yea>.

F Do you think they should?

S Sure [ns][e0][ad].

F Okay they should do you think they should treat every patient <the> same way as if they had AIDS^

S <Sure> [ns][e0][ad].

S Of course [ns].

F and then that would eliminate the risk of having AIDS?

S It should (should) [ns].

F You think so?

S I hope they try it [s][cs][ds][e1][mcxs'][x][s'][mt1][oc][cxy][x][y][t1][cc][cc][cc].

F Well I think that would be the best thing because if everybody took the precautions against>

F (Don't ev) it don't even have to be against AIDS.

F Against any disease right?

S Yes (but) like to be like that [s][cs][ds][e1][mcxs'][x][s'][mt1][oc][mcopxp][x][p][mt1][cc].

S (but like) Want to but hard to [*s][cs][ds][e1][mc-x*s'][-x][*s'][mt1][oc][cc][a][cc].

F But it's hard to do it?

S X Other people will [es].

S Other/s will not [es].

F Well that's that's true.

F Some will.

F Some won't.

S Either of them want to should and want to help you but people are people [*s][cs] [con][e2][mc*x*s'][*x][*s'][mt2][mc*xs'][*x][s'][mt2][oc][cxy][#x][y][t2][ac][copxp] [x][p][t2][cc][cc][cc][cc][cc][cc][n][n].

F People are people.

F Right.

S Mhm [ns].

F But that doesn't say that they shouldn't take the proper <precautions>.

S <You/'re right> [s][ss][ds][e0][mcopxp][x][p][mt2][cc][a].

S (and sh should) Should [*ns][e0].

F Ok then when you go into a hospital or into a dentist's office or into a doctor's office would you want to see them with the gloves on and and a mask and everything and make sure that there's no communication of disease?

S Yes [ns].

F That's what you would want?

S I/'d like [*s][ss][ds][e0][mcx-y][x][-y][mt3][cc]>

S Sure but [*ns][e0][cc][cc]^

F You wouldn't feel funny like walking into XX's office and he puts on gloves to examine you and and puts on a mask.

= XX is someone's name

S He does/n't [es].

F Well he doesn't but would you <feel funny>?

S <Does he> wash/s XX [*s][ss][yn][*mop2x][x][mt2][cc]?

= XX sounds like in her

F He washes <his hands>.

S <Right> he does not [es].

F Yes he does.

S When I/'ve see it [*ns][e1][*cxy][x][y][t3][cc][cc][cc].

S When [es]?

S Where [es]?

F He always washes his hands <before> this.

S <No> [ns].

S I did/n't see that [s][ss][ds][e0][mcxy][x][y][mt4][cc][cc].

F You didn't see it?

S <No> [ns].

F <Well> yea I <know that>^

S <He does/n't> [es].

S Sometimes he does [es].

S Come/3s and sit/3s down in a minute and talk/*3s [*s][ss][con][e0][mob1-x][-x][mt2]
[mphob1-x][-x][j][mt3][*mob1-x][-x][mt1][cc][cc][cc][n][cc].

F Well sometimes probably he forgets.

S I (I) XX wash his (wo) thing/s too much
[s][ss][ds][e0][mop2xy][x][y][j][mt2][cc][cc][n][ad][ad].

F You don't think he does?

S No [ns].

F Well as far as I remember he does it every time we walk in there.

F Maybe <last time he didn't>.

S <Even (even)> the girl something does
[*s][ss][ds][e0][mob2x*y][x][*y][mt2][cc][cc][n][cc]^

F Gives you a shot?

S Yea [ns].

F Yea.

S She did/n't wash hand [*s][ss][ds][e0][mop2xy][x][y][mt4][cc][n].

F She didn't out on gloves?

S No [ns].

F Well maybe she should.

S I (I) don't think she does [es].

S I/'m not sure [es].

F Well I don't think she gives>

F Maybe she doesn't give too many shots you know and and>

F But if she's if she gave somebody a shot before you came in you know she should put on gloves when you come in or wash her <hands>.

S <Maybe> does [*es].

S I can/n't remember in (in) [*s][ss][ds][e0][mcx-y][x][-y][*j][mt3][cc][cc].

F You don't remember if she does?

S No [ns].

S I notice difference [*s][ss][ds][e0][mcxy][x][y][mt2][cc][n].

F Well come to think of it I don't think she does.

F But I don't think she gives anybody sh shots.

S She does [es].

F She gives you a shot.

S Other people too <XX> [ns][e0][a][n][ad].

F <She> does?

S Why did/n't he give me doctor have this (u) [*s][ss][wh][e1][mob3x-yz][x][-y][z][mt4][*mob2xy][x][y][t1][why][cc][cc][n][cc]>

S What is this [s][ss][wh][e0][mcopxp][x][p][mt2][what][cc]?

F What the shot?

S No what is this [s][ss][wh][e0][mcopxp][x][p][mt2][what][cc]?

F The needle?

S (and) Yes [ns].

S (but) The put away a thing they throw away [*s][cs][ds][e1][mphob2-xy][-x][y][mt2]

[rc][phob2xy][x][#y][t3][cc][cc][n][cc].

F Yea he throws it away.

F He doesn't <reuse it>.

S No (like) people don't [es].

F Right.

+ tape ends

Subject 4

Conversation Sample 3

S=Subject, F=Familiar Partner

9/3/93

F Ok?

S X Do about it [*s][ss][ds][e0][mob2-x-y][-x][-y][j][mt1][cc][cc].

F Did you understand what you saw?

S Yes [ns].

S <XX>^

F <They're> taking kids not the top kids^

S That/'s right [s][ss][ds][e0][mcopxp][x][p][mt2][cc][a].

F Yea to try to see if they could learn as well as the intelligent kids <the bright kids>.

S <XX> Who does this [s][ss][wh][e0][mob2xy][x][y][mt2][who][cc]?

S XX Teacher X see/*3s people do that [*s][cs][ds][e1][*mcxs'][x][s'][mt1][oc][ob2xy][x][y][t2][n][n][cc].

F Well the teachers pick out the students.

F Now they're they're not picking out the top students they're picking out the middle students.

F And they're sending them to these places that the colleges run these type of classes to see how well they could learn.

F And they do learn.

S XX Never heard that [*s][ss][ds][e0][mc-xy][-x][y][mt3][cc].

F You never heard about it?

S No [ns].

F I didn't <I didn't> either until now.

S <No> (well) so far XX people to do that [*s][ss][ds][e0][*mob2xy][x][y][mt2][ad][ad][n][cc].

F Mhm.

S With XX [*ns][e0][cc].

F Yea but this here proves that if they're away from their environment and in this kind of environment they could learn as well as the so called smart people.

S (yea but) X (but but) XX School XX (t) more teacher/*s to do it [*ns][e1][ob2*xy][*x][y][t2][n][a][n][cc].

S Money/*'s always down [*ns][e0][n][ad][ad].

F Well there's not all the cities have problems with money in their schools.

F There are schools that have money and that have teacheres and that they participate in these programs.

S Yea X good like that [*s][ss][ds][e0][mc-xy][-x][y][mt1][a][cc].

S Happy to XX like that [*ns][e1][c-xy][-x][y][t2][a][cc].

S <X>^

F You're happy to see this?

S Yes [ns].

S I don't need it now but I XX (and) and go myself young/er [*s][ss][con][e0][mcxy][x][y][mt3][mob1-x][-x][mt1][cc][cc][ad][cc][cc][cc][cc][a].

S It/*'s good [*ns][e0][cc][a].

F You should have gone to college huh?

S Never [ns]!

S <X>^

F <w> Why?

S Money ever <X> [*ns][e0][n][ad]^

F <You> didn't have any <money>?

S <X> People my friend/s had (m) no money go (kuh w) were [*s][cs][ds][e2] [mob2xy][x][y][mt2][rc][*ob1x][#x][t1][oc][cop-x-p][-x][-p][t2][n][cc][n][ad][n]^

F Where to go to school?

S No were did [*s][ss][con][e0][mcop-x-p][-x][-p][mt2][mob2-x-y][-x][-y][mt2]^

F Yea.

S My friend/s [ns][e0][cc][n].

S See all my friend/s just one pull/3s XX [*s][cs][ds][e1][mc-x*s'][-x][*s'][mt1][oc] [ob2x-y][x][-y][t2][cc][cc][n][ad][n]^

F Elaine?

S Yea and <XX> [*ns][e0][cc]^

F <Is she> the only one that went to college?

S (y uh) Those girl/s <and> (uh) that other X girl/s after [*ns][e0][cc][n][cc][cc][a][n][cc]^

F <Yea>.

F No but none of your other friends went to college except elaine?

S (uh I) XX You went school but not about enough [*s][ss][con][e0][mob1x][x][mt2][cc][n][cc][ad][cc][a].

F I went to night school <but not>^

S <But not> never [*ns][e0][ad][ad]^

F Well I had to work.

S (so) I had to go <XX> [s][ss][ds][e0][mob1x][x][mt4][cc]^

F <You> had to work too.

S Sure [ns].

F Uh <huh>.

S <I> didn't even dream of go/ing to college [s][cs][ds][e1][mcxs'][x][s'][mt3][oc][ob1x][#x][j][t2][cc][ad][cc][cc][n].

S (but) See [*s][ss][ds][e0][mc-x-y][-x][-y][mt1]^

F It's never too late.

=S laughs

F You could still go.

S Too late for me [ns][e0][ad][a][cc][cc].

S <Can/'t> [*ns][e0]^

F <It's> never too <late>.

S <Ok> you try it [s][ss][i][e0][mop2xy][x][y][mt2][cc][cc].

F I try it?

F You want me to go to school?

F Ok.

S <XX>^

F <I'll> go to school and I won't be home at night.

S You too tired [*ns][e0][cc][ad][a].

=S laughs

F I'm too tired.

=F laughs

S Get/ing too XX [*s][ss][ds][e0][*mop3-x-y][-x][-y][mt2][ad].

S (but)^

F No really you should go you should go to school.

S Oh <no> [ns].

F <Take> something.

S No [ns].

S <XX>^

F <You can't> type because your nails are <too long>.

S <No did> like that all did in school always my nail/s like that and XX the [*s][ss][con][e0][mc-xy][-x][y][mt2][mob2x-y][x][-y][j][mt2]pmcxy][x][y][mt2][cc][cc][cc][n][ad][cc][n][cc][cc][cc]^

F You always had long nails?

S Yes [ns].

S (the lady) The teacher (li) did/n't like it <(didn't like it)> [s][ss][ds][e0][mcxy][x][y][mt3][cc][n][cc].

F <Didn't like it>?

F Who your typing teacher?

S XX But now I X about XX kid/s like that X I very learn that [*s][cs][ds][e1][mcx*s'] [x][*s'][mt2][oc][*cxy][x][y][t1][cc][ad][cc][cc][n][cc][cc][ad][cc].

F Yea those kids that are going to school now I hope they'll learn a lot of stuff and be able to <use it>.

S <It> look/3s as if those kid/s don't even go to school long enough [s][cs][ds][e1] [mcys'][y][s'][mt2][oc][ob1x][x][j][t3][cc][cc][cc][cc][n][ad][cc][n][a][ad].

F Long enough?

S The school/*'s tough [*ns][e0][cc][n][a].

F Well they go programs now where kids can go.

F But not everybody could go to college.

S I bet too even (even) if they (g) give (uh) us XX the money for a long time [*s][cs] [ds][e1][mcx*s'][x][*s'][mt2][oc][ob3xzy][x][z][y][j][t2][cc][ad][ad][cc][cc][cc][cc][n] [cc][cc][a][n].

S Try to have money and took it away when she go/*3s out [*s][cs][con][e2][mc-xs'] [-x][s'][mt1][oc][ob2-xy][-x][y][t2][mop3-xyz][-x][y][z][mt2][ac][*ob1x][x][t1][n][cc] [cc][cc][cc][ad].

S They need more money but don't have enough <X> [*s][ss][con][e0][mcxy][x][y][mt2][mob2-xy][-x][y][mt3][cc][cc][n][cc][n].

F <They> don't have enough money.

S No [ns].

F If you went to school now what would you take?

S I don't know (I don't know I I don't know) [es].

F Would you take computer?

S (I I) My friend lee <work/3s> in a <bank> and that time it like/ed it [*s][ss][con][e0][mop2x][x][j][mt2][mcxy][x][y][mt2][cc][n][n][cc][cc][n][cc][cc][n][cc][cc].

F <Yea> <mhm>.

F You mean the computer?

S She learn/ed from the bank [s][ss][ds][e0][mop2x][x][j][mt2][cc][cc][cc][n].

F <Yea> yea.

S Other place she work/ed too but this time they X it fast [*s][ss][con][e0][mop2x][x][mt2][a][n][cc][ad][cc][cc][n][cc][cc][ad].

S Annie would talk her and said she work/3s a little XX now [*s][cs][con][e1][mop2x][x][mt3][mc-xs'][-x][s'][mt2][oc][op2x][x][t2][n][cc][cc][cc][cc][a][ad].

S So need/ed the money <so> XX her [*s][ss][ds][e0][mc-xy][-x][y][mt2][ad][cc][n][ad][cc].

F <Mhm>.

S (you) She try/ed other thing/s to do for money so she X [*s][cs][ds][e1][mop2xy][x][y][mt2][rc][ob2xy][#x][#y][j][cc][a][n][cc][n][ad][cc].

S Oh done [*s][ss][ds][e0][*mob2-x-y][-x][-y][mt2].

F Ok.

=F laughs

+ tape ends at 8:57

Subject 5

Conversation Sample 5

S=Subject, F=Family Member

11/5/93

S (well) What do <you> [*ns][e0][what][cc]^

F <Yea X>.

S What do you think about that [s][ss][wh][e0][mcxy][x][y][j][mt2][what][cc][cc][cc]?

F Huh?

S Think about that [*s][ss][yn][e0][mc-x-y][-x][-y][j][mt1][cc][cc]?

F How do you like that see?

F They got a car that instead of>

F I only get like fifteen miles on a gallon in my car.

S Oh that big car [ns][e0][cc][a][n].

S You have big car [*s][ss][ds][e0][mob2xy][x][y][mt2][cc][a][n].

F Yea mine is bigger but I really don't need a big car.

S I know though you need that

[*s][cs][ds][e1][mcx*s'][x][*s'][mt2][oc][cxy][x][y][t2][cc][ad][cc][cc].

F But theirs goes fifty>

F What was it?

F Fifty one or fifty <four> miles <a> a gallon.

S <Yea> <yea> (but) it would take time to (uh) how mile/s small

[*s][cs][ds][e1][mop3xy][x][y][mt3][rc][cc][n][cc][n].

F It's a small car.

S No it can/n't make too much [s][ss][ds][e0][mcxy][x][y][mt3][cc][ad][n].

F Go fast you <mean>?

S <Yea> [ns].

F It can go sixty five miles an hour.

F You don't have to go any faster than that.

S Said this one run/3s (from) from the different kind (res res gres) [*s][cs][ds][e1] [mc-xs'][-x][s'][mt2][oc][op2x][x][j][t2][cc][n][cc][cc][a][n].

F Different kind of gas?

S Yea [ns].

F Oh it's the same kind of gas I think.

F It just gets it burns slower in in the motor when it hits the spark plug and it fires it burns less gas.

S (what a) What about the (uh) XX [*ns][e0][what][cc][cc]?

F The which?

S No (uh uh) in car/s different in XX c [*ns][e0][cc][n][a][cc][n].

S No b a [*ns][e0][n][n]>

S No like X [*s][ss][ds][e0][mc-x-y][-x][-y][mt1]^

F Electric?

S Yea [ns].

F Yea what about it?

S Don't talk about <that> [*s][ss][yn][e0][mop2-x][-x][j][mt3][cc][cc]?

F <Well> they're just experimenting now with the electric cars.

F Those probably won't be out for a long long time.

F The electric cars I don't know how far they'll go on one charge.

F And then when you come home or if you pull into a gas station you have to charge it up again so you could go as far as the battery will last.

F That's uh that's a little bigger problem.

F If you're going to take a car on a big trip you're going to have stations you're going to have to have stations on the roads so that you could charge up your battery.

S (but) X Now they say how small the (the the) [*s][cs][ds][e1][mcx*s'][x][*s'][mt2][oc][ad][cc][cc][a][cc]^

F How small the car is?

S Yea [ns].

F <Well how how is>^

S <Why so little> [*ns][e0][why][ad][a]?

F It's not really little.

F It's>

F Honda is coming out with a car that will carry five people the same as your car will.

F It's almost the same size as yours but it's lighter.

F They got aluminum wheels which is lighter.

F They got>

F Your tires aren't so wide.

F They're narrower so you won't have so much resistance and friction on the road see.

F But it's going to take a little while.

S (we'll not know it) We/'ll never know it [s][ss][ds][e0][mcxy][x][y][mt3][cc][cc].

F We'll never know it?

F How do you know?

F You're going to live to be a hundred.

F You'll you'll see <it>.

S <No> I won't see <it> [s][ss][ds][e0][mcxy][x][y][mt3][cc][cc].

F <That> you know what?

F When those cars come out I'll get you a new car.

=S and F laugh

S Wait/ing that long X my car XX [*s][ss][ds][e0][*mob1-x][-x][mt2][cc][a][cc][n]^

F If your car gives you trouble^

S Get out [s][ss][i][e0][mop3xyz][#x][#y][z][mt2].

F Then we'll we'll get a different car.

S Yea [ns].

S (but)^

F No but these cars probably won't be out for a long time.

F At least four or five years I would guess.

S Maybe they do something like you saw LA how bad it is [*s][cs][ds][e2][mob2xy][x][y][mt2][ac][cx*s'][x][*s'][t2][oc][copxp][x][p][t2][ad][cc][cc][cc][cc][n][cc][a][cc].

F Yea the earth is polluted yea.

S (because) Too many you talk about one person [*s][ss][ds][e0][mop2x][x][j][mt2][ad][cc][cc][cc][a][n].

S Out there you talk about too [*s][ss][ds][e0][mop2x][x][j][mt2][cc][cc][cc][cc][ad].

F Mhm.

S (but) One way should have other way/s to train/s or something like <that> [*s][ss][ds][e0][mob2xy][x][y][j][mt3][a][n][a][n][cc][n][cc][cc][cc][cc].

F <Trains>?

F They should because too many>

F Like I told you yesterday there's too many cars with only one person in it <see>.

S <In> San Diego they XX better to have more people <in the car> [*ns][e1][ob2xy][#x][y][j][t2][cc][n][cc][a][cc][n][cc][cc][n]^

F <In San> Diego?

S In other place too [*ns][e0][cc][a][n][ad].

S (but) Then you understand [*s][ss][yn][e0][mcx-y][x][-y][mt1][ad][cc]?

F Yea if there's less cars>

F If there's more people ride in one car there would be less cars and less pollution.

S How could like XX take two hour/s to go home and XX [*s][cs][ds][e2][mc-x*s'][-x][*s'][mt1][oc][op3-xy][-x][y][t1][rc][ob1-x][-x][t2][cc][a][n][ad][cc].

S (she) Now she [*ns][e0][ad][cc]^

F From the airport you mean?

S No in house [*ns][e0][cc][n].

F <Yea>.

S <Ttake> [*s][ss][ds][e0][mop3-x-y][-x][-y][mt1]^

F Two hours?

S (m) Sometimes [ns][e0][ad].

S (and) Sometimes she (put uh) talk/*3s her in a phone [*s][ss][ds][e0][*mop2x][x][j][mt1][ad][cc][cc][cc][cc][n].

F Mhm.

S (so) She talk/3s with <someone> [s][ss][ds][e0][mop2x][x][j][mt2][cc][cc][cc].

F <Well> there's so much traffic there.

F You saw the roads how crowded they are.

F And that's what make the the the air so polluted because all those cars are on one road there and they're waiting.

F Traffic is slow and there there's just too many cars.

S Yes [ns].

S (uh) <XX>^

F <Yea but> people aren't going to change.

F They're not going to say well we have to get together and drive four or five in a car.

F They just won't do it.

S Maybe can/n't do that but it/'s better to have a (uh) train [*s][cs][con][e1][mob2-xy][-x][y][mt3][mcopxp][x][p][mt2][rc][ob2xy][#x][y][t2][ad][cc][cc][cc][a][cc][n]^

F A train?

F Sure it's better to take the train.

\+ tape ends

Subject 4

Conversation Sample 6

S=Subject, F=Family Member

11/5/93

F About eating or something?

F Ok.

=S laughs

S Talk about X people less money now and no good XX [*s][ss][ds][e0][mop2-x][-x][j][mt1][cc][n][a][n][ad][cc][ad][a].

F Well you see what that is in Florida they have to have a balanced budget which is good.

F That part I think is good.

F But what they're doing they're cutting down in health care but in the long run the same patients come back and have to go into the hospital.

S So now what [es]?

F Now what?

F Well that's what <we're trying> ^

S <Because> [*ns][e0][cc]^

F That's what we're trying to solve.

F What do you think?

S (can/n't) We can/n't think about because less money XX every had enough money to do thing/s [*s][cs][ds][e2][mcx*p][x][*p][mt3][ac][ob2*xy][*x][y][t2][rc][ob2xy][x][y][t2][cc][cc][cc][a][n][cc][a][n][n].

S Even like what happen/ed LA fire/s big and need (muh) money to help people that [*s][cs][con][e2][mc-xs'][-x][s'][mt1][oc][cx*p][x][*p][t2][mc-xy][-x][y][mt1][rc][cxy][x][y][t2][ad][cc][n][n][a][cc][n][n][cc].

S (I) I don't know [es].

S I can/n't do it (any) anymore [s][ss][ds][e0][mob2xy][x][y][mt3][cc][cc][ad].

S No way XX learn to use less money [*s][cs][ds][e1][mc-xs'][-x][s'][mt1][oc][pb2-xy][-x][y][t2][ad][n][a][n].

S Need more and more and more and help [*s][ss][ds][e0][mc-xy][-x][y][mt1][n][cc][n][cc][n][cc][n].

F Well the only solution is more taxes and people don't want to pay more taxes.

S (but) Don't have a week (uh) work/ing either <so> [*s][cs][ds][e1][mob2-xy][-x][y][mt3][ac][*op2-x][-x][t2][cc][n][ad][ad]^

F <There's> a lot of people out of work.

S So they can XX tax/s [*ns][e0][ad][cc][n].

F Well that's what everybody's trying to solve.

S <How> [es]?

F <Do you> have a solution?

S No way [ns][e0][ad][n]!

S No way [ns][e0][ad][n].

=F laughs

S I (I) see that/*'s so bad [*s][cs][ds][e1][mcx*s'][x][*s'][mt2][oc][cc][cc][ad][a].

F You think it's bad.

S (uh e the girl) The lady at [*ns][e0][cc][n][cc]>

S No v e n [*ns][e0][n][n][n]^

F Venus?

S Yea [ns].

F Yea.

S I talk/*ed to today [*s][ss][ds][e0][*mop2x][x][mt1][cc][cc][n].

S She had a birthday [s][ss][ds][e0][mob2xy][x][y][mt2][cc][cc][n].

F Yea.

S (and) Very smart she is and look a lot of XX

[*s][ss][con][e0][mcopx*p][x][*p][mt2][mc-x-y][-x][-y][mt1][ad][a][cc][cc][cc][n][cc]^

F Uh huh.

S Sick [ns][e0][a].

S XX She seventy try/ing they think that in here so (s) s o used to be in (s) so she think/*3s that (har duh ar) people [*s][cs][con][e2][*mcx*s'][x][*s'][mt2][oc][cxy][x][y][j][t2][mcop-x-p][-x][-p][mt3][*mcx*s'][x][*s'][mt1][oc][cc][n][cc][cc][cc][ad][cc][cc][cc][cc][cc][n]^

F Yea.

S Like used to be on (uh) russia [*s][ss][ds][e0][mcop-x*p][-x][*p][mt3][cc][cc][n].

S (duh c uh) No s u <c> [*ns][e0][n][n][n]^

F <Russia>?

S C (c c) What live/ed like that [s][ss][wh][e0][mop2x][x][j][mt2][what][cc][cc]?

F The communists you mean?

S No but s o [*ns][e0][cc][n][n]^

F Socialists?

S Yea [ns].

F Yea.

S She said that she think/3s XX like that XX (uh) [s][cs][ds][e1][mcxs'][x][s'][mt2][oc][cxp][x][p][t2][cc][cc][cc][cc][cc]^

F She thinks that living under a socialist government is the best way.

S No he don't like<it> [*s][ss][ds][e0][*mcxy][x][y][mt3][cc][cc].

F <Oh> she don't like <it>.

S <No> but she XX because there/*'s no way to be like that [*ns][e2][rc][copxp][x][p][t2][cc][cc][cc][cc][ad][n][cc][cc].

F Oh she thinks that <that's that's> the solution.

S <XX> But not [*ns][e0][cc][ad].

S She don't like it <because> she think/*3s that our president and our people want

that [*s][cs][ds][e2][*mcxy][x][y][mt3][ac][*mcxs'][x][s'][t1][oc][cxsy][x][y][t2][cc] [cc][cc][cc][cc][cc][n][cc][cc][n][cc].

F <Mhm> <yea>.

S <(uh)> No good [ns][e0][ad][a].

S (duh) Again know I feel about our other kid/s not all our/z other kid/s different now [*s][cs][ds][e1][mc-x*s'][-x][*s'][mt1][oc][cxp][x][p][t2][ad][cc][cc][cc][a][n][ad][cc] [cc][a][n][a][ad].

F Uh huh.

S We live (uh) X different [*s][ss][ds][e0][mop2x][x][mt2][cc][a].

S (and) Now is hard to the kid/s <more> [*s][ss][ds][e0][mcop-xp][-x][p][*j][mt1] [ad][a][cc][cc][n][cc].

F It's hard for the kids?

S More [ns][e0][cc].

F Well we'll be everything will be in proportion to the times.

F You know what when we were young there was no medicare there was no medicaid and anything like that.

F Nobody made any money but everything everybody got along.

F And what's going to be probably is everything's going to get more expensive but everything all the wages are going to go up in proportion.

F And it'll be a little tougher you'll you're going to have to pay more taxes.

F That's that's^

S No way they do it [*s][ss][ds][e0][*mob2xy][x][y][mt1][ad][n][cc][cc].

S <No way> [ns][e0][ad][n].

F <I know> people don't want to <pay more taxes>.

S <(but)> You see our people were died [*s][cs][ds][e1][mcx*s'][x][*s'][mt2][oc] [*op2x][x][t4][cc][cc][n]^

F Younger?

S Yes [ns].

F <Yea>.

S <(and)> Never had XX and X [*s][ss][ds][e0][mob2-x-y][-x][-y][mt3][cc]^

F Medicare?

S Yea [ns].

F Yea.

S It was nice for us [s][ss][ds][e0][mcopxp][x][p][j][mt2][cc][a][cc][cc].

F Mhm.

S <Now> [ns][e0][ad]^

F <We> didn't know any better.

S I know [es].

S (but) You know I/'m not good about I think about [*s][cs][ds][e2][mcxs'][x][s'][mt2][oc][copxp][x][p][*j][t3][ac][cx*p][x][*p][t2][cc][cc][a][cc][cc][cc].

S (but uh) Back of my throat box/*'s better [*ns][e0][n][cc][cc][a][n][a].

=F laughs

F You always say that.

S I X [*ns][e0][cc].

F You you you don't want to know what's going on.

S Oh I do too [es].

S <I want> to know [s][cs][ds][e1][mcxs'][x][s'][mt2][oc][cxs'][x][#s'][t2][cc].

F <You do> want to know.

S (but I) I don't like I think what happen/ed [*s][cs][ds][e2][mcx*s'][x][*s'][mt3][oc][cx*s'][x][*s'][t2][oc][cx-p][x][-p][t2][cc][cc][cc].

F Yea.

S XXX.

+ tape ends

Subject 4

Narrative Sample 1

6/09/93

S Young girl [ns][e0][a][n].

S (uh) Her mother not her real mother has three girl/s with mean girl/s and (sh sh) she's want/*ing happy and do all the work she have to [*s][cs][con][e1][mob2xy][x][y] [*j][mt2][*mcx*s'][x][*s'][mt1][*mob2-xy][-x] [y][mt1][rc][*ob2xy][x][y][t2][cc][n] [ad][cc][a][n][a][n][cc][a][n][cc][cc][a][cc][n][cc][n][cc].

S (and) After that the XX like the (the) dog and all the thing/*s he like/*3s [*s][ss] [con][e0][*mc-xy][-x][y][mt1][rc][*cxy][x][y][mt][cc][cc][cc][cc][n][cc][n][cc][n][cc].

S She will nice to (to she) [*ns][e0][cc][a][cc].

S (and then) They heard that a (uh uh hall) ball from the prince [*s][cs][ds][e1] [mcx*s'][x][*s'][mt2][oc][j][cc][cc][cc][n][cc][cc][n].

S Say/3s all the lady come to look because he want/*3s have a wife [*s][cs][ds][e4] [mc-xs'][-x][s'][mt2][oc][*ob1*x][*x][t1][ac][ob1x][#x][t2][ac][*cx*s'][x][*s'][t1][oc] [*ob2xy][#x][y][t1][n][cc][n][cc][cc][cc][n].

S (but) The girl here thought he have time to go with her [*s][cs][ds][e2][mcx*s'][x] [*s'][mt2][oc][*ob2xy][x][y][t1][ac][ob1x][#x][j][t2][cc][n][ad][cc][n][cc][cc].

S Oh oh [ns]!

S Can/n't go and meet again to then she/'s sit/ing and cry/ing [*s][ss][con][e0] [mob1-x][-x][mt3][mop2-x][-x][mt1][mob1x][x][*j][mt3][mob1x][x][mt3][ob1x][x] [mt3][cc][ad][cc][n][cc][cc].

S (so then) He heard that the (f fair fair) person [*s][cs][ds][e1][mcx*s'][x][*s'][mt2][oc][cc][cc][cc][n].

S (and) Said I can (pick nick) look pretty and nice [*s][cs][ds][e1][mc-xs'][-x][s'][mt2] [oc][ob1x][x][t2][cc][a][cc][a].

S (and) They put a dress on [s][ss][ds][e0][mphob2xy][x][y][mt3][cc][cc][n].

S But you may come home by twelve

[s][ss][ds][e0][mob1x][x][j][mt2][cc][cc][ad][cc][n].

S (uh) Have to look for a car (uh) a (hos) horse and make really nice go in there [*s]

[cs][con][e1][mphob2-x*y][-x][*y][mt4][mc2x-yp][-x][-y][p][mt1][ac][*ob1-x][-x][j]

[t1][cc][n][cc][n][cc][ad][a][cc][n].

S As soon as they get there the (pin) friend/s like this pretty girl and dance/ing and [*s]

[cs][con][e1][ac][ob2xy][x][y][t2][mcxy][x][y][mt2][mob1-x][-x][nt2][cc][ad][cc][cc]

[n][cc][n][cc][a][n][cc][cc]>

S (but the the fu fu fu file fi fire F R) He said you must be here by twelve (ok)

[s][cs][ds][e1][mcxs'][x][s'][mt2][oc][copxp][x][p][j][t2][cc][cc][ad][cc][n].

= trying to say fairy god mother

S (and) At the time he saw the (n uh the) ten twelve year/s (ears)

[*s][ss][ds][e0][mcxy][x][y][mt2][cc][cc][n][cc][cc][a][a][n].

S One time [ns][e0][a][n].

S (and) She go and (a) had to go fast to go back to her house [*s][cs][con][e1][*mob1x]

[x][mt1][mob1x][#x][mt4][ac][ob1x][#x][j][mt2][cc][cc][ad][ad][cc][cc][n].

S (and these) All the thing/s have happy to have been there [*s][cs][ds][e1][*mob2x-y]

[x][-y][mt2][ac][copxp][#x][p][t4][n][cc][n][a][n].

S (but) The prince (uh lo) she lost her foot and he want/*3s to (find her) look for her

[*s][cs][con][e1][mob2xy][x][y][mt2][*mcxs'][x][s'][mt1][oc][phob2xy][#x][y][t2][cc]

[n][cc][cc][n][cc][cc][cc].

S And the (girl) other girl (said) try/ed very hard to the (news uh) shoe on because it/'s

small [*s][cs][ds][e2][mcx*s'][x][*s'][j][mt2][ac][copxp][x][p][t2][cc][cc][a][n][ad]

[ad][cc][cc][n][cc][cc][cc][a].

S (and) Try/ed hard but it (X) no good [*s][ss][con][e0][mc-xy][-x][#y][mt2][ad][cc]

[cc][ad][a].

S (so finally) The man for him try/ed her shoe/s

[*s][ss][ds][e0][mcxy][x][y][*j][mt2][cc][n][cc][cc][cc][n].

S (and then) He (the prince) got it [s][ss][ds][e0][mob2xy][x][y][mt2][cc][cc].

S (and) They (they) marry/ed and happy [*s][ss][con][e0][mop2x][x][mt2][cc][cc][a].

+ tape ends

Subject 4

Narrative Sample 2

6/11/93

S (ok) There was a young girl and (uh uh wife) her (his uh uh) father [s][ss][con][e0][mob1x][x][mt2][cc][cc][a][n][cc][cc][n].

S (anyway) Had (uh) three (gir) girl/s and (uh) my lady [*s][ss][con][e0][mob2-xy][-x][y][mt2][a][n][cc][cc][n].

S (and then) Decide/ed that she/*'s a very happy girl [*s][cs][ds][e1][mc-xs'][-x][s'][mt2][oc][cc][cc][cc][ad][a][n].

S (ya) All the (hir all the gir) people/*'s nice to her [*ns][e0][cc][cc][n][a][cc][cc].

S Not nice to her [*ns][e0][ad][a][cc][cc].

S (and) They had lots of work to do [s][cs][ds][e1][mob2xy][x][y][j][mt2][rc][ob2xy][#x][#y][mt2][cc][n][cc][n].

S (but) She like/*ed to talk about the (uh the the) bird/s and the (the lo so hos a hos H A) H O R S [*s][cs][ds][e1][*mcxs'][x][s'][mt1][oc][ob1x][#x][j][t2][cc][cc][cc][n][cc][cc][n][n][n][n].

S (sometimes I XX but XX) She/*'s happy and (do) do want to do [*s][cs][con][e1][*mcx*s'][x][*s'][mt2][oc][ob2x-y][#x][-y][t2][cc][a][cc].

S (then her uh) The (a) place they X for the (the uh) [*ns][e0][cc][n][cc][cc][cc]>

S The (p) prince want/ed go to (wowo uh wo no) want/*ed to be a ball [*s][cs][con][e3][mcx*s'][x][*s'][mt2][oc][*ob1x][#x][*j][mcx*s'][x][*s'][mt1][oc][copxp][#x][*s'][t2][cc][n][cc][n].

S (and uh) She thought pick a pretty dress of herself [*s][cs][ds][e1][mcx*s'][x][*s'][mt2][oc][ob2-xy][-x][y][j][t1][cc][cc][a][n][cc][cc].

S (but he but) The girl/s said you can/n't come [s][cs][ds][e1][mcxs'][x][s'][mt2][oc][ob1x][x][t3][cc][n][cc].

S (you) She was cry/ing and could/n't go [s][ss][con][e0][mob1x][x][mt4][mob1x][#x][mt4][cc][cc].

S (so) XX After done the (the far far uh faver the f, the, the fire, uh uh) [*ns][e0][cc][a][cc]>

S I can/n't say it [s][ss][ds][e0][mcxy][x][y][mt3][cc][cc].

S (anyway) This lady want/ed to help her and make her look for (uh XX uh uh) pumpkin [*s][cs][con][e2][mcxs'][x][s'][mt2][oc][cxy][#x][y][t2][mc2xys'][#x][y][mt2][oc][phob2xy][#x][y][t2][cc][n][cc][cc][cc][n].

S Make it (uh X uh) with a (uh) horse/s and the big XX [*s][ss][con][e0][*mc-xy][-x][y][j][mt1][cc][cc][cc][n][cc][cc][a].

= sounds like getting out

S (anyway uh) This told her to (we) be home one ten twelve for sure [*s][cs][ds][e1][mc2xzs'][x][s'][z][mt2][oc][copxp][#x][p][t2][cc][cc][ad][n][n][n][cc][ad].

S (and then) She went to the (pa) party [s][ss][ds][e0][mob1x][x][j][mt2][cc][cc][cc][n].

S (and then) The (pla) prince like/ed her [s][ss][ds][e0][mcxy][x][y][mt2][cc][n][cc].

S (and) Dance/ing and all kind like that [*s][ss][con][e0][*mob1-x][-x][mt2][cc][a][n][cc][cc].

S (but) X At some time she saw the (the) time [s][ss][ds][e0][mcxy][x][y][j][mt2][cc][cc][n][cc][cc][n].

S (and) She go home and fast [*s][ss][ds][e0][*mob1x][x][mt1][cc][ad][cc][ad].

S (and) Went there and (uh went there) she lost her (s) shoe [*s][ss][con][e0][mob1-x][-x][mt2][mob2xy][x][y][mt2][ad][cc][cc][cc][n].

S (and then the) The prince said he had to look for her because (they her he) he like/ed her [s][cs][ds][e2][mcxs'][x][s'][mt2][oc][phob2xy][x][y][t5][ac][cxy][x][y][t2][cc][n][cc][cc][cc][cc][cc].

S (and) All the people look for the shoe/s [s][ss][ds][e0][mphob2xy][x][y][mt2][cc][cc][n][cc][n].

S The other girl/s try very hard to put on too

[*s][cs][ds][e1][mcx*s'][x][*s'][j][mt2][oc][phop3x-y][#x][-y][t3][cc][a][n][ad][ad].

S (uh) They/*'s too small [*ns][e0][cc][ad][a].

S (and) The (th the) three girl/s and a (father uh) mother and could/n't do it

[*s][ss][con][e0][mob2xy][x][y][mt4][cc][a][n][cc][cc][n][cc][cc].

S (and the ho) What happen/ed was the (the) prince the maninlaw saw how it fit her

[*s][cs][ds][e3][mcopxs'][#x][rc][ob1x][t2][s'][mt2][ccl][c*xs'][*x][s'][t2][oc][op2xy]

[x][y][t2][cc][cc][n][cc][n][cc][cc][cc].

S (and then) She met her back to the (the p) prince and were happy after (after) that

[*s][ss][con][e0][mo2xy][x][y][j][mt2][*mcopxp][#x][p][j][mt1][cc][cc][cc][cc][cc][n]

[cc][a][cc][cc].

+ tape ends

Subject 4

Narrative Sample 3

9/3/93

S (well) It start/*3s out with a pretty lady

[*s][ss][ds][e0][*mphop2x][x][j][mt1][cc][cc][cc][a][n].

S (and) Her has (uh) not a (muthu) mother but two girl/s too

[*s][ss][con][e0][*mob2*xy][*x][y][mt2][cc][cc][n][cc][a][n][ad].

S (but) Not nice [*ns][e0][ad][a].

S (and) She/*'s (uh) so pretty and sing/ing

[*s][ss][con][e0][*mop2x][#x][mt2][cc][ad][a][cc].

S (uh) Have do thing/s for that mother and mean [*s][cs][ds][e0][*mob2-xy][-x][y][j]

[mt2][n][cc][cc][n][cc][a].

S (but after that) She all like/ed sing/ing and nice

[*s][cs][ds][e1][mcx*s'][x][*s'][mt2][oc][*op2x][#x][t2][cc][cc][cc][a].

S (uh) Work/ed hard for this mother two lady/z girl/s [*s][ss][ds][e0][mop2-x][-x][j]

[mt2][ad][cc][cc][n][a][a][n].

S (then after that uh) Heard that go/ing to be (uh uh) a (uh) ball [*s][cs][ds][e1]

[mc-x*s'][-x][*s'][mt2][oc][*ob1x][x][t4][cc][cc][n].

S (and) She want/ed have dress too

[*s][cs][ds][e1][mcx*s'][x][*s'][mt2][oc][*ob2xy][#x][y][t1][cc][n][ad].

S (and) Other girl/s and mother said not you can/n't have a (du uh)

[*s][cs][con][e1][mcx*s'][x][*s'][mt2][oc][ob2x-y][x][-y][t3][a][n][cc][n][ad][cc][cc].

S Can/n't go she cry/ed [*s][cs][ds][e1][oc][ob1-x][-x][t3][mop2x][x][mt2][cc].

S (but anyway) They fix/ed up go to ball

[*s][ss][con][e0][mphop2x][x][mt3][*mob1x][#x][mt1][cc][cc][n].

=fixed up pronounced fikt up and ball pronounced mall

S (but but) That time (the ferel ferel F A R M anyway) she saw her and listen you could go too [*s][cs][con][e1][mcxy][x][y][mt2][mob1-x][-x][mt1][ac][ob1x][x][t3][cc][n][cc][cc][cc][cc][ad].

S (uh uh) Need for a (houses uh) horse and thing to make a big (uh monkey) pumpkin to make XX sure to (in the uh) go the [*s][cs][ds][e3][mc-xp][-x][p][j][mt1][rc][c-xy][-x][y][t2][rc][mphcxs'][x][s'][t3][oc][ob1x][#x][t2][cc][cc][n][cc][n][cc][a][n][cc]>

=pumpkin pronounced punker

S Not a car but that thing [ns][e0][ad][cc][n][cc][cc][n].

S (anyway) What the fairy said you come home twelve for sure [*s][cs][ds][e1][mcx*s'][x][*s'][mt2][oc][ob1x][x][t1][cc][cc][n][cc][ad][n][cc][ad]!

= fairy pronounced fair

S (and) He go/*3s so happy and dance/ing [*s][ss][con][e0][*mob1x][x][mt1][*mop2x][#x][mt2][cc][ad][a][cc].

S (and then) X Like the prince and like her [*s][ss][con][e0][mc-xy][-x][y][mt1][mc-xy][-x][y][mt1][cc][n][cc][cc].

S (so but) Could/n't find her because he went then go away twelve to go back home [*s][cs][con][e2][mc-xy][-x][y][mt4][mob1x][x][mt2][ac][*ob1-x][-x][t1][rc][ob1-x][-x][t2][cc][cc][cc][cc][ad][n][ad][ad].

=went pronounced wunt

S (so then) Came back home and unhappy [*s][ss][con][e0][mob1-x][-x][mt2][ad][ad][cc][a].

= unhappy pronounced unhaphoppy

S (and) Saw her the (uh fow fow the st hus anyway the) [*s][ss][ds][e0][mc-xy][-x][y][mt2][cc][cc]>

S Not the car but [*ns][e0][ad][cc][n][cc]>

S (ok then after that) The prince/*'s look/ing for a lady saw X [*s][cs][ds][e1][*mcxp][x][p][mt2][rc][cx-y][x][-y][t2][cc][n][cc][cc][n].

=sounds like vee

S (so) All the pea saw but lady/s for her shoe/s [*s][ss][con][e0][mc*x-y][*x][-y][mt2][cc][cc][n][cc][n][cc][cc][n].

S That other lady came to (her) their house and try/ed to put her but big/er [*s][cs][con][e1][mob1x][x][j][mt2][mcx*s'][#x][*s'][mt2][oc][op3xy-z][#x][y][-z][t2][cc][a][n][cc][cc][n][cc][cc][cc][a].

S (so after that uh) Try/ed said not to her but make her try [*s][cs][con][e2][mc-x*s'][-x][*s'][mt2][oc][*c-x-y][-x][-y][j][t2][mc-xy][-x][y][mt1][rc][cx-y][x][-y][t2][ad][cc][cc][cc][cc].

S (and) They saw he (he) got it [s][cs][ds][e1][mcxs'][x][s'][mt2][oc][op3xy][x][y][t2][cc][cc][cc].

S (and) The man try/ed X shoe/s (schools) and got that [*s][ss][con][e0][mcxy][x][y][mt2][mop3xy][#x][y][mt2][cc][n][n][cc][cc].

=shoes pronounced sues

S (and) Got marry/ed and live/ed all the time [*s][ss][con][e0][mop2-x][-x][mt4][mop2-x][-x][mt2][cc][cc][cc][n].

+ tape ends

Subject 4

Narrative Sample 4

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S (uh uh) Pretty lady who she had to work hard in her house because a lady in XX (mhm) people [*ns][e2][rc][op2x][x][j][t4][ac][a][n][cc][cc][ad][cc][cc][n][cc][cc][n][cc][n].

=sounds like dolger

S (and) She had to do all the work [s][ss][ds][e0][mob2xy][x][y][mt4][cc][cc][cc][n].

S (and but) Always (uh) like nice and talk [*s][ss][con][e0][mc-x-y][-x][-y][mt1][mop2-x][-x][mt1][ad][a][cc].

S Now sing/ing and like that [*s][ss][con][e0][*mop2-x][-x][mt2][mc-xy][-x][y][mt1][ad][cc][cc].

S She like/*3s to the (the) for (uh ha da shor) [*s][ss][ds][e0][*mcx-y][x][-y][mt1][cc][cc][cc][cc]>

S (anyway the) One time (the X) the prince want/*3s to have a party for look for a new wife [*s][cs][ds][e2][*mcxs'][x][s'][mt1][oc][ob2xy][#x][y][t2][rc][*ob1x][#x][j][t1][a][n][cc][n][cc][n][cc][cc][cc][a][n].

S (so the the) He was/n't (uh) happy to go out [s][cs][ds][e1][mcopxp][x][p][mt3][rc][ob1x][#x][t2][cc][a][ad].

S (and uh) she/*'s cry/ing because the lady said you can/n't go X [*s][cs][ds][e2][*mop2x][x][mt2][ac][cxs'][x][s'][t2][oc][ob1x][x][t3][cc][cc][cc][n][cc].

S (and) Then she/*'s cry/ing and had her clothes on but she could/n't go [*s][ss][con][e0][*mop2x][x][mt2][*mob2xy][#x][y][mt1][mob1x][x][mt4][ad][cc][cc][cc][n][cc][cc][cc].

S (but) The (fair f the) fairy said ok you can come [s][cs][ds][e1][mcxs'][x][s'][mt2][oc][ob1x][x][t2][cc][n][cc].

S I make/3s (uh uh) a horse and a pumpkin to make (uh) like that but you must be home by twelve [*s][cs][con][e1][*mcxy][x][y][mt1][rc][cx-y][x][-y][j][t2][mcopxp][x][p][j][mt2][cc][cc][n][cc][cc][n][cc][cc][cc][cc][ad][cc][n].

=pumpkin pronounced puntin

S (and) They went to party so nice [*s][ss][ds][e0][mob1x][x][mt2][cc][cc][n][ad][a].

S (and the min) The prince were like her a lot [*s][ss][ds][e0][*mcxy][x][y][mt1][cc][n][cc][cc][n].

S (and) They/*'re dance/ing and happy [*s][ss][con][e0][*mop2x][x][mt2][cc][cc][a].

S (but) She thought there was a (ten) twelve [s][cs][ds][e1][mcxs'][x][s'][mt2][oc][ob1x][x][t2][cc][cc][cc][n].

S (and) Fast she go/*3s back where she want/*3s to [*s][cs][ds][e1][*mob1x][x][mt1][ac][*cxs'][x][#s'][t1][ad][cc][ad][cc][cc].

S Then after that the fairy said good [s][ss][ds][e0][mcxp][x][p][mt2][ad][ad][cc][cc][n][a]!

S You/'re here now and that/'s it [s][ss][con][e0][mcopxp][x][p][mt2][mcopxp][x][p][mt2][cc][ad][ad][cc][cc][cc].

S Then the (the the far uh) prince want/*3s to find out [*s][cs][ds][e1][*mcx*s'][x][*s'][mt1][oc][phcx-y][#x][-y][t3][ad][cc][n]>

S (oh) He (lo) lost her shoe/s [s][ss][ds][e0][mop2xy][x][y][mt2][cc][cc][n].

S (and) He want/*3s to get [*s][cs][ds][e1][*mcx*s'][x][*s'][mt1][oc][op3x-y][#x][-y][t2][cc]>

S (well no anyway they) The prince said I/'ll look for a lady like that [s][cs][ds][e1][mcxs'][x][s'][mt2][oc][ob1x][x][j][j][t2][cc][n][cc][cc][cc][n][cc][cc].

S Little [ns][e0][a].

S (and) All the lady/s in the X said try/ed or (or) to see the size [*s][cs][con][e1][mcx*s'][x][*s'][mt2][oc][c-x-y][-x][-y][t2][oc][c-xy][-x][y][t2][cc][cc][n][cc][cc][cc][cc][n].

S (so) Then the lady/s came her house and try/ed so (t) a lot to put the (sh) shoe/s on but could/n't do it [*s][cs][con][e1][mob1x][x][mt2][mcx*s'][#x][*s'][mt2][oc][ob3xyz][#x][y][z][mob2xy][#x][y][mt4][ad][cc][n][cc][n][cc][ad][cc][n][cc][n][cc][cc][cc].

S (but the) Then (the the) the man show/ed you the shoe size was very nice [s][cs][ds][e1][mcxzs'][x][z][s'][mt2][oc][copxp][x][p][t2][ad][cc][n][cc][cc][a][n][ad][a].

S (and) Then he found out she was (uh) like the small girl [s][cs][ds][e1][mphcxs'][x][s'][mt3][oc][copxp][x][p][t2][ad][cc][cc][cc][cc][a][n].

S (and) The prince saw her and (d) decide/ed get marry/ed [*s][cs][con][e1][mcxy][x][y][mt2][mcx*s'][#x][*s'][mt2][oc][*op2x][#x][t3][cc][n][cc][cc].

S (and) Very happy [ns][e0][ad][a].

+ tape ends

Subject 4

Narrative Sample 5

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S Ok [ns].

S There was a pretty girl [s][ss][ds][e0][mob1x][x][mt2][cc][cc][a][n].

S (and) Her had a wife for his father and two girl/s

[*s][ss][ds][e0][mob2*xy][*x][y][j][mt1][cc][cc][n][cc][cc][n][cc][a][n].

S (and) She had to work a lot in her house for everything enough other lady nothing

[*s][ss][ds][e0][mop2x][x][j][j][mt4][cc][cc][n][cc][cc][n][cc][cc][ad][a][n][cc].

S (and but) She/*'s happy and sing/ing and saul come up

[*s][ss][con][e0][*mop2x][#x][mt2][*ob1x][x][t1][cc][a][cc][cc][n][cc].

S (uh house buh) Horse and bird and animal and [*ns][e0][n][cc][n][cc][n][cc]>

S (anyway) Then were heard that a (pince) prince want/*3s to have a ball [*s][cs][ds]

[e2][mc-x*s'][-x][*s'][mt4][oc][*cxs'][x][s'][t1][oc][ob2xy][#x][y][t2][ad][cc][cc][n]

[cc][n].

S (and) The mother and (the boy uh) the girl/s all fix/ed up their

[*s][ss][con][e0][mphx-y][x][-y][mt3][cc][n][cc][cc][n][cc][cc]>

S (but) Her and other girl want be there too

[*s][cs][con][e1][mcx*s'][x][*s'][mt2][oc][*copxp][#x][p][t1][cc][cc][a][n][ad][ad].

S (but) They no can/n't go [*s][ss][ds][e0][*mob1x][x][mt3][cc].

S (and) Very unhappy [ns][e0][ad][a].

S (and) Luckily she saw the (ferel) fairy

[s][ss][ds][e0][mcxy][x][y][mt2][ad][cc][cc][n].

=fairy pronounced fair

S (and) She told her that we could go and make for a pumpkin and (a house h r s) to make a (uh) horse to make from around it and gave her a beautiful dress [*s][cs][con] [e2][mcxz*s'][x][z][*s'][mt2][oc][ob1x][x][t3][mcx*y][#x][*y][t2][oc][c-xy][-x][y][t2]

[rc][cx-y][x][y][j][t2][mop3xzy][#x][z][y][mt2][cc][cc][cc][cc][cc][cc][cc][n][cc][cc][n] [cc][ad][cc][cc][cc][cc][a][n].

S (and) They said you can go but come back for sure to (one tel hen) one two (years) week/s [*s][cs][con][e1][mcxs'][x][s'][mt2][oc][ob1x][x][t2][mob1x][#x][mt1][cc][cc] [cc][ad][cc][ad][cc][a][a][n] >

S (anyway) Then she went there and had a nice time [s][ss][con][e0][mob1x][x][mt2][mob2x][#x][y][mt2][ad][cc][ad][cc][cc][a][n].

S (and uh) Prince like/*3s her a lot [*s][ss][ds][e0][*mcxy][x][y][mt1][n][cc][cc][n].

S (and and) So pretty [ns][e0][ad][a].

S Then she saw twelve had to go home [*s][ss][con][e0][mcxy][x][y][mt2][mob1x][#x][mt4][ad][cc][n][ad].

S (and) Run/ing around and go out [*s][ss][con][e0][*mop2-x][-x][mt2][mob1-x][-x] [mt1][cc][cc][cc].

S (and uh) Her face fall down [*s][ss][ds][e0][*mob1x][x][mt1][cc][n][cc].

S (and) She went home [s][ss][ds][e0][mob1x][x][mt2][cc][ad].

S (and) Then she were look/ing for the prince to look where her (sh) shoe was [*s][cs] [ds][e2][*mob1x][x][j][mt3][rc][cx*s'][x][*s'][t2][rc][copxp][x][p][t2][ad][cc][cc][cc] [n][cc][cc][n].

S Too small [ns][e0][ad][a].

S (so) Came back to other girl/s put the inside [*s][ss][con][e0][mob1-x][-x][j][mt2] [mob3-x-yz][-z][-y][z][mt1][ad][cc][a][n][cc][cc].

S No no good [ns][e0][ad][a].

S Big [ns][e0][a].

S (so) The prince his X put on and like/ed it a lot [*s][ss][con][e0][mob3x-yz][x][-y][z] [mt2][mcxy][#x][y][mt2][cc][n][cc][cc][cc][cc][cc][n].

S (and) That he marry/ed and very happy [*s][ss][con][e0][mop2x][x][mt2][cc][cc][cc][ad][a].

Subject 4

Narrative Sample 6

11/2/93

S He was a young girl who live/ed way (uh) girl with mother and a girl/s [*s][cs][ds][e1][mcopxp][x][p][mt2][rc][op2x][x][j][t2][cc][cc][a][n][cc][n][n][cc][n][cc][cc][n].

S (but) She had to work all the time [s][ss][ds][e0][mop2x][x][mt4][cc][cc][cc][n].

S Know how to XX (unhap) she was happy anyway [*s][cs][con][e1][mc-x*s'][-x][*s'][mt1][oc][mcopxp][x][p][mt2][cc][cc][a][ad].

S (but) She work/*3s hard [*s][ss][ds][e0][*mop2x][x][mt1][cc][ad].

S (and) She sing/*3s and saw the animal/s and like/ed it (a lot) a lot/s [*s][ss][con][e0][*mop2x][x][mt1][mcxy][#x][y][mt2][mcxy][#x][y][mt2][cc][cc][cc][n][cc][cc][cc][n].

S (but) These people not nice [*ns][e0][cc][n][ad][a].

S (so) Then they (a) heard that a prince was look/*ing for (a wi of) a wife [*s][cs][ds][e1][mcx*s'][x][*s'][mt2][oc][*ob1x][x][j][t3][ad][cc][cc][cc][n][cc][cc][n].

S (so) They want to have a ball to see the people there [s][cs][ds][e2][mcxs'][x][s'][mt2][oc][ob2xy][#x][y][t2][rc][cxy][#x][y][t2][cc][cc][n][cc][n][ad].

S (so) Then she want/*3s to put a pretty dress on her but the girl/s said you can/n't going anyway so just here [*s][cs][con][e2][*mcxs'][x][s'][mt1][oc][ob3xyz][#x][y][z][t2][mcx*s'][x][*s'][mt2][oc][*ob1x][x][t4][ad][cc][cc][a][n][cc][cc][cc][cc][n][cc][ad][ad][ad][ad].

S (and) She was cry/ing [s][ss][ds][e0][mop2x][x][mt4][cc].

S (but) Thank god the (uh fer) fairy/*'s lucky [*ns][e0][cc][n][a].

S (and uh) You could go with also [s][ss][ds][e0][mob1x][x][mt3][cc][cc][ad].

S (but) Put on a pumpkin will put out for (forest uh) flower/s [*s][ss][con][e0][mob3-xzy][-x][z][y][mt1][mob3-xz-y][-x][z][-y][j][mt2][cc][cc][n][cc][cc][n] >

S No (uh) XX do what go (with the buh uh) for the (uh uh bell) ball [*s][ss][con][e0][mob2-xy][-x][y][mt1][mob1-x][-x][j][mt1][cc][cc][cc][n].

S (so) Come there but the fairy said you must be home by twelve [*s][cs][con][e1] [mob1-x][-x][mt1][mcxs'][x][s'][mt2][oc][phcopxp][x][p][j][t3][ad][cc][cc][n][cc][ad] [cc][n].

S (and) Ok [ns].

S (but) She wear/*3s a pretty dress [*s][ss][ds][e0][*mob2xy][x][y][mt1][cc][cc][a][n].

S (and) Also when she were he/'s dance/ing and like/ed her and he like/ed him [*s][cs] [con][e1][ac][*copx-p][x][-p][t1][mop2x][x][mt3][mc-xy][-x][y][mt2][mcxy][x][y][mt2] [ad][cc][cc][cc][cc][cc][cc][cc][cc].

S (and) Then sing/ing and [*s][ss][ds][e0][*mop2-x][-x][mt2][ad][cc] >

S (but) She saw forgot hurry up go home to twelve [*s][cs][con][e2][mcx*s'][x][*s'] [mt2][oc][c-x*s'][-x][*s'][t2][oc][*phop2-x][-x][t2][mob1-x][-x][j][mt1][cc][ad][cc][n].

S (and) On time she left her shoe/s and came home [s][ss][con][e0][mcxy][x][y][mt2][mob1x][#x][mt2][cc][n][cc][cc][n][cc][ad].

S Now (the) the (pince) prince took the (the) shoe/s make sure look all the lady/s how it (swa) small for (him) she [*s][cs][ds][e2][mop3xy][x][y][mt2][rc][*phcx*s'][#x][*s'] [t2][oc][*ob1x][#x][t1][ad][cc][n][cc][n][cc][cc][n][cc][cc][a][cc][cc].

S (so) The other lady/s try/ed his shoe on it [s][ss][ds][e0][mcxy][x][y][j][mt2][cc][a][n][cc][n][cc][cc].

S Too big [ns][e0][ad][a].

S Luckily (the) she show/ed the (he uh) shoe/s like her [*s][ss][ds][e0][mcxy][x][y][*j][mt2][ad][cc][cc][n][cc][cc].

S (and) Took so happy [*s][ss][ds][e0][mop3-x-y][-x][-y][mt2][ad][a].

S Then the prince saw him [s][ss][ds][e0][mcxy][x][y][mt2][ad][cc][n][cc].

S (and) The marry/ed and ok [*s][ss][ds][e0][mop2-x][-x][mt2][cc][cc].

+ tape ends

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